

# Moderating effect of CSR on the Direction and Strength of the Relationship between Corporate Governance Mechanism and Integrated Reporting Quality: An Evidence from India

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## Abstract

Grounding upon the perspective of agency theory, the current study intends to inspect the association between Governance Practices of Companies, in the form of board attributes and Quality of Integrated Reporting among selected listed Indian companies. Further the study also aims to evaluate, whether the association between the board's attributes and IR quality is moderated by the Corporate Social Responsibility (CSR). For the purpose of testing hypothesis, the study has considered a sample of 25 top Indian corporates of energy industry listed in the BSE-500 group. The period of the study extends from 2017-18 to 2021-22. Pooled OLS regression analysis is used to test the impact of corporate governance practices on the IR quality and evaluate if CSR moderates the strength and direction of their relationship. To ascertain the IR disclosure score of the sample companies, a checklist is developed built on IR Framework devised by the International Integrated Reporting Council (IIRC) and the technique of visual content analysis is applied. Further board size, firm size, leverage, ROE, ROA, Market to Book value ratio are considered as the control variables to strengthen the panel data model. The study found that board characteristics had a positive relationship with IRQ. It is also revealed that CSR positively moderates the association between Corporate Governance mechanism and IRQ. The significance of Corporate Governance in the process of managerial decision making is the major theoretical development of this research.

**Keywords:** Corporate Governance, Board Characteristics, Corporate Social Responsibility (CSR), Integrated Reporting Quality (IRQ), Moderates, IR disclosure

## 1. Introduction

The demand for high quality information has been on its peak due to integration of world economies, diversity, and complexity in the nature of business activities, and high-profile corporate scams and scandals (*Gupta et al., 2015 and Singh et al., 2021*). In order to express accountability and transparency towards the stakeholders, the corporates have started a new initiative where, along with financial information they are also disclosing non-financial information in their annual reports (*Camilleri, 2018*). However, such fragmented and voluminous reporting practices, which are lacking connectivity, conciseness and understandability are being challenged by the accounting profession. In the world of corporate reporting, Integrated Reporting (IR) is the latest novelty.

Multiple studies have been conducted in relation to the reporting practices and value creation model of corporates, (*Vitolla et al., 2020 and Nistor et al., 2019*); how companies are implementing the corporate social responsibility (CSR) strategies (*Worokinasih, S. and Zaini, 2020 and Dragu, 2018*) and attitude of stakeholders' concerning integrated reporting (*Silvestri et al., 2017*). The Integrated Reports are capable of meeting the expectations of the stakeholders by cultivating stewardship and accountability and refining the superiority of the information delivered to them. "IR improves resource allocation in the decision-making process and promotes a more cohesive, concise and efficient approach to business reporting, showing how organizations can create value over time" (*International Integrated Reporting Council (IIRC), 2013*). Our research raises an important question:

*Is the affiliation between the board attributes and the quality of Integrated Reports, moderated by Corporate Social Responsibility (CSR)?*

In fact, as revealed by *Vitolla et al. (2019, 2020)*; *Songin, Pistoni, Bavagnoli and Minutiello (2020)* and *Roman, Mocanu and Hoinaru (2019)*, the emphasis must be made on the quality of the integrated reports prepared and produced by the corporates, rather than just implementing IR and using it as a legitimization tool. The above studies found that the factors responsible for implementation of IR practices (*Vitolla and Raimo, 2018*) are quite different from the determining factors of IR quality (*Vitolla, Raimo, Rubino and Garzoni, 2020* and *Silvestri, Veltri, Venturelli, and Petruzzelli, 2017*). Conscientious and accountable organizations may possibly justify the genuine and rational outlooks of the stakeholders by generating superior quality IRs (*Haji, A.A. and Hossain, 2016*). As per this given logic, a crucial part is played by a strong governance system in the IR strategy and approach of any company (*Wang, Zhou, and Wang, 2020* and *Sriani, and Agustia, 2020*). However, emerging a philosophy of stakeholder's governance which explicates the way to harmonize the contradictory financial and non-financial needs of the manifold stakeholders is challenging for every corporate (*Vitolla, Raimo, Rubino, and Garzoni, 2019*; *Verriest, Gaeremynck, and Thornton, 2013*). Parenthetically, the executive level managers are presently facing the above-mentioned governance dilemma, which is also endorsed by nearly 180 CEOs who have been closely associated with the Business Roundtable conducted in 2019, which stated that "the focus will now be on addressing broader stakeholder interests instead of just maximizing the wealth of shareholders" (*Amis et al., 2020*). Presently, more than 2500 companies all over the world are preparing and producing Integrated Reports (*KPMG, 2022*; *IIRC, 2020* and *AICL, 2020*). Furthermore, as stated by *Chouaibi et al. (2021)*, "the degree of independence and diversification of the board of directors being considered as factors of "good governance," a responsible company with the most comprehensive governance is the most conducive to compliance with the principles of IR".

The major intention of this paper is to scrutinize, if the characteristics of the company's board holds any significant part in defining the quality of the Integrated Reports prepared by the Indian corporates, where the moderator role is played by the CSR.

The objective of this work, concerning the role of the board of directors, is linked to the disclosure of information provided to investors offering an improved perception of the course of value creation (*International IR Council (IIRC), 2013* and *Busco et al., 2013*).

*Objectives:* The objectives of the study are:

- To examine the impact of Board's attributes on the Integrated Reporting Quality (IRQ) of the sample companies.
- To investigate the moderating effect of Corporate Social Responsibility (CSR) on the association between the Board's Independence and Integrated Reporting Quality (IRQ) of the sample companies.
- To find out the moderating effect of Corporate Social Responsibility (CSR) on the relationship between the Board's Gender Diversity and Integrated Reporting Quality (IRQ) of the sample companies.

Further this paper is enunciated in the following manner. The review of literature and hypotheses development is presented in the *section 2*. The methodology of the study, sample design, measurement of variables and developed models to be tested is accessible in *section 3*. *Section 4* consists of the results of the analysis and its depiction. The findings of the study are discussed in the *section 5*. Finally, *section 6* concludes the study.

## **2. Review of Literature and Hypotheses Development**

### **2.1. Theoretical Background**

Several preceding studies have cited, agency theory, the theory of signalling, the theory of stakeholders, institutional theory and the theory of legitimacy, to exemplify and explicate the adoption of Integrated Reporting (IR), its contributing factor and its significance (*Charumathi and Ramesh, 2020*; *Jensen and Berg, 2012*; *Wild and Van Staden, 2013*; *Kılıç and Kuzey, 2018*; *Manes-Rossi et al., 2020*; *De Villiers et al., 2014*; *Higgins et al., 2014*; *Adams et al., 2016* and *Vitolla et al., 2020*). For the purpose of this investigation, agency theory, the theory of stakeholders and the theory of legitimacy are encompassed to offer a comprehensive elucidation of the interconnected phenomenon of accounting.

- 2.1.1. *The Agency Theory*: Consistent with the theory of agency developed by **Jensen and Meckling, (1976)**, “a corporation faces problems from conflicts of interest between agents (top management) and principals (owners) such as higher agency costs, and information asymmetry”. The board of directors are supposed to disburse high attentiveness towards the needs of stakeholders’ as well as are accountable to them (**Shankman, 1999**). An approach of control is symbolized by the Board of Directors, beneficial for drawing the attention of majority of stakeholders both with regard to monetary information (**Healy and Palepu, 2001 and Brennan and Solomon, 2008**) as well as to non-monetary information (**Prado-Lorenzo et al., 2009**). IR can be imposed with this responsibility as it is a reporting system which blends both financial and non-financial information with a proper balance that delivers value to the shareholders and other stakeholders (**IIRC, 2013**). Information asymmetry occurs when some individuals or entities have access to private information that others do not, leading to an imbalance in knowledge. In the realm of finance and investment, this often manifests as insiders (such as managers or executives) having private information about a company's performance that is not readily available to external, uninformed investors (**Sriani et al., 2020**). A well-implemented integrated reporting framework can indeed contribute to reducing information asymmetry, enhancing stakeholder trust, and ultimately mitigating agency costs within an organization.
- 2.1.2. *The Legitimacy theory*: Legitimacy theory posits that companies engage in certain disclosure practices, such as integrated reporting, to signal their legitimacy to stakeholders. This is based on the idea that there is an implicit contract between a company and its stakeholders, and by disclosing specific information, the company seeks to maintain or enhance its perceived legitimacy (**Shocker and Sethi, 1974**). Legitimacy theory introduces the concept of legitimacy management, suggesting that companies actively manage their legitimacy as a strategic resource to achieve specific goals. Integrated reporting is seen as a tool for managing legitimacy, and the quality of the sustainability disclosure plays a role in this process (**Dumay et al., 2015**). According to legitimacy theory, companies may disclose sustainability information to improve the public perception of their sustainability performance. On the flip side, poor sustainability performers might engage in low-quality sustainability disclosure to mask their true performance and protect their legitimacy. Large companies, with greater visibility and impact on the local community, are particularly vulnerable to this risk. Integrated reporting can be a strategic tool for large firms to manage stakeholder expectations, reduce the risk of government interference, and mitigate political costs (**Hackston and Milne, 1996 and Knox et al., 2005**). Legitimacy theory underpins the motivations behind integrated reporting. It highlights the strategic role of non-financial disclosure, especially for large companies, in managing legitimacy, meeting stakeholder expectations, and minimizing the risk of government intervention. This aligns with the broader concept of corporate social responsibility and sustainable business practices (**Ness and Mirza, 1991; Gray et al., 1995**).
- 2.1.3. *Stakeholder theory*: Regarding the stakeholder theory proposed by R. Edward Freeman (1984) “company does exactly those things that help them meet stakeholders’ expectations”. According to **Fauji et al. (2007)**, “Stakeholders are divided into two groups: primary and secondary. Every decision made by entities such as customers, suppliers, employees, and investors directly affect key stakeholders. On the other hand, secondary actors can influence board decisions directly or indirectly, including trade unions, local communities, the media, social worker groups, and foreign local governments” (**Soria and Rastogi, 2021 and Suttipun, 2017**). CSR is defined as "corporate responsibility for their impact on society". This definition emphasizes the idea that businesses have responsibilities that extend beyond economic activity and must consider the social implications of their actions. The concept of CSR is mainly based on stakeholder theory. Stakeholder theory, as stated by Freeman (1984), emphasizes that companies have social responsibility that extends to considering the interests of all people whose actions have affected them this includes not only shareholders but employees, customers, them suppliers as well as large communities. Stakeholder theory suggests that stakeholders are interdependent. Creating value for one stakeholder is seen as creating value for others (**Freeman et al., 2010**). This network emphasizes the idea that businesses should operate in a way that benefits all stakeholders. CSR, guided by stakeholder theory, prioritizes certain corporate responsibilities over others. In particular, it emphasizes a degree of responsibility to society, and to employees and customers. This role prioritization means recognition that projects impact and are affected by various stakeholders (**Freeman and Dmytriiev,**

2017). Over time, the concept of CSR has evolved, requiring companies to go beyond basic financial and legal responsibilities to address ethical and philanthropic aspects. This evolution is accompanied by a broader understanding of corporate citizenship and sustainability permanence (*Carroll, 2016*).

## 2.2. Development of Hypotheses

### 2.2.1. Independence of the Board and the Quality of Integrated Reporting:

The structure of the board of directors portrays a significant role in improving the efficacy of corporate governance which in turn helps in reduction of agency cost (*Frias-Aceituno et al., 2013*). As per the Companies Act, 2013, the independent directors do not have any kind of pecuniary relationship with the corporates, further they also do not have any position within the company neither are directly involved in any of the activities of the company (*Donnelly and Mulcahy, 2008; Companies Act, 2013 and De Villiers and Dimes, 2021*). Therefore, it is advocated that proficient and effectual monitoring is possible, when the board of a company comprises of a greater number of independent directors, as they are in a position to extend a more objective and resourceful feedback in relation to the performance of the company (*Liao et al., 2015*). Additionally, as the compensation and careers of the independent directors are not subject to the appraisal of the CEO's, consequently they do not maintain any personal relation with the CEO's and do not engage in any kind of collusion with the executive members of the corporates (*Core et al., 1999; Eng and Mak, 2003 and Carter et al., 2003*). In one of his works, *Wang et al. (2020)*, disclosed that corporates having audit committees, large boards and following traditional governance mechanism produce better integrated reports (*Chouaibi et al. 2021*). *Vitolla et al. (2020)* in one of their studies concluded that "the board could seek to achieve the stakeholder's requirements and protect their interests by encouraging management to provide more social and environmental information besides financial information to ensure the quality of information and increase transparency" (*Hamad et al., 2020*). On the basis of the above notion the following hypothesis has been established:

**H<sub>01</sub>**. There is a positive association between the independence of the board and quality of integrated reporting.

### 2.2.2. Board's Gender Diversity and the Quality of Integrated Reporting:

As defined by *Robinson et al., (1997)*, "Board diversity can be defined as the difference of the characteristics of its members" (*Robinson and Dechant, 1997*). It has been observed that assorted and vivid ideas, views, and perspectives are generally considered while making decisions, if there exists diversity in the board (*Post et al. 2011*). A combination of informational diversity, social category diversity and value diversity is a result of group diversity (*Jehn et al., 1999*). An attitude of problem solving paired with effective leadership and strongly developed relationship with in an organization is always promoted by presence of diversity (*Robinson and Dechant, 1997*). Gender diversity is one of the most debated aspects of diversity in the recent literatures (*Frias-Aceituno et al., 2013 and Alfiero et al., 2017*). It is due to the cultural and social differences between male and female, that the gender diversity is gaining a larger significance in the business environment (*Liao et al., 2015*). As found by numerous studies there lies variances with regards to educational background, professional experience, communication styles, skills, thought process, personality, perception and attitude among women and men (*Feingold, 1994 and Buss, 2005*). Studies have shown that women are generally more committed, involved, and diligent, in all the activities that they perform in their lives and hence the same will be reflected in their organizational performance (*Huse and Solberg, 2006*). Women are seen to favour a peaceful and coherent environment within the board (*Songini et al., 2020*). The disparity in disclosure practices of corporates can be clearly explained by the gender diversity (*Gibbins et al. 1990*). Further, *Vitolla et al. (2020)* also concluded that "the presence of a higher number of women on the board of directors results in an increase in the quality of integrated reports provided by the company" (*Roman et al., 2019*). In the context of Integrated Reporting, superior attentiveness by womenfolk towards the issues related to sustainability might inexorably lead the corporation to enrich the eminence of the integrated report (*Chouaibi et al. 2021*). Hence it is assumed that women are capable of making numerous contributions in the process of governance and are one of the major sources of legitimizing the activities of the business. However, even after so many significant aspects, women are still under-represented to various degrees on the boards of the corporates (*Terjesen et al., 2016; Carrasco et al., 2015 and Chen et al., 2014*). Thus, the following hypothesis is proposed:

**H<sub>02</sub>**. There is a positive association between the board's gender diversity and the quality of integrated reporting.

2.2.3. *Board independence and the IRQ: The moderating effect of CSR*

Companies engaging in CSR activities are anticipated to be more principled and ethical in performing their day-to-day operations. This minimizes the negative influence of the corporates on the community and the environment, promoting a sustainable growth (Aggarwal & Singh, 2019). Further, by considerably contributing towards CSR activities the companies foster a healthy relationship with the stakeholders leading to legitimization of the corporate actions and guaranteeing the continuity of the business operations in a long run (Arora & Jaideep, 2017). According to Purbopangestu (2014), "the more companies disclose items in CSR and the better the quality of disclosure, the higher the value of the company". Further, it was also found that the value of the company is positively and significantly influenced by the disclosure of CSR information in the reports of the corporates (Purbopangestu, 2014). When the corporates are committing towards their CSR, they are expected to be highly transparent and blatant in their social contracts (Aggarwal & Singh, 2019 and Arora & Jaideep, 2017). Hence, corporates are always encouraged by their CSR to be more thoughtful of their actions and its influence on the society and environment in a long run (Worokinasih and Zaini, 2020). Most importantly, Amami et al., (2015) in their study concluded that "companies with 'good' governance (including variables related to the board of directors, but also to the power of stakeholders) are more devoted to CSR practices and subsequently to the IRQ". Therefore, the following hypothesis has been developed to be empirically tested:

**H<sub>03</sub>**. The CSR positively moderates the association between board independence and quality of integrated reporting.

2.2.4. *Board diversity and the IRQ: The moderating effect of CSR*

It is often seen that women have proven to be good leaders (Fitzgerald, 2018). A very few of them are manipulative and unscrupulous, rather they are highly ethical, principled, and evident when it comes to disclosure of information (Vongalis-Macrow, 2016; Salas-Lopez, Deitrick, Mahady, Gertner, & Sabino, 2011 & Mamadou, 2019). Thus, the companies having a greater number of women leaders on their board can definitely produce better quality IRs. Whether as a homemaker, a working person or balancing these two roles together, it is frequently seen that women are naturally blessed with an immense and boundless power to accomplish them all. In today's society women are successfully playing the challenging role of mounting against the odds and striking a balance between being socially robust and economically autonomous. Therefore, if corporates commit to their CSR approach strongly, then women directors will definitely be more dedicated towards realising them and bring a good balance between corporate's social and economic goals, also improvising the quality of reporting to the stakeholders. Rao and Tilt (2016), confirmed that "the annual reports of companies with at least three women on their boards contained more social and societal information". Further Bidi (2018), found that "the presence of women on the board of directors is important because it influences the disclosure of information on CSR, which improves the company's image vis-a-vis stakeholders and thus the quality of IR". Therefore, the subsequent hypothesis has been drawn:

**H<sub>04</sub>**. The CSR positively moderates the relationship between board's gender diversity and quality of integrated reporting.

### 3. Research methodology

#### 3.1. Data collection and sample design

As the population of the study the corporates listed in Bombay Stock Exchange (BSE) 500 were taken in consideration. In order to judiciously construct the sample which positively represent the chosen population for the investigation the technique of purposive sampling also called as judgemental sampling is used. On the basis of the given technique all the companies under the energy sector which were listed in the BSE-500 group were chosen for the final sample. Hence the final sample stands at 25 companies belonging to energy industry. "The logic behind selecting the energy industry corporates (i.e., oil, gas and electricity-based firms), is that, nearly every industry all over the world utilizes energy-based products and services as an indispensable input for production and distribution of their own goods and

services” (*Liko, 2019*). Hence, as stated by the European Environment Agency, “energy industry acts as a fuel to ignite and accelerate the universal economic actions. Besides, there remains explicit and long-lasting bearing of energy production, distribution and utilisation on the various environmental aspects and concerns of the world” (*EEA Glossary, 2004*). Due the above stated details there has been a constant discussion on the conducts of the energy corporates leading to higher expectations from these companies to make more transparent and unambiguous disclosures.

The period of study extends from the year 2017-18 to 2021-22, i.e., five financial years. Data was collected since the year 2017-2018 as, “on February 6, 2017, a circular issued by SEBI asserted that top 500 listed companies might prepare IR voluntarily to improve their disclosure practices” (*SEBI, 2017*). Therefore, for the study an observation of 125 firm-year has been considered. Pooled-OLS regression has been used to test the models. The data has been collected from the annual reports of the sample corporates, the International Integrated Reporting Framework (IIRF) given by IIRC and CMIE prowwess database (*Soriya and Rastogi; 2021*).

### 3.2. Measurement of variables

#### 3.2.1. Dependent variable: Integrated Reporting Quality (IRQ)

The procedure of visual content analysis is utilised, in order to calculate the degree of combined IR disclosure (*Songini et al., 2020; Vitolla et al., 2020; Raimo et al., 2020; Islam, 2020; Girella et al., 2019 and Busco et al., 2019*). As per *Krippendorff, (1980)*, “definite measures are considered under the content analysis technique where various divisions or categorizes are made by coding the written texts. This helps in assessing and quantifying the qualitative data for conducting the investigation and discussing the consequent results” (*Rossiet et al., 2018*). Hence, a disclosure index is formulated to inspect and calculate the IR quality.

Six content components grouped into 25 subsections are shown in the Integrated Report consolidated index, which is based on the Integrated Reporting Framework given by IIRC. Then the annual reports of the energy corporates from the year 2017 to 2022 are detailly examined using the method of content analysis. Further, score “0” is awarded in the event of concealment of the of the content component and score “1” in the event of disclosure. At the end the individual IR content scores are calculated by totalling the awarded scores and dividing them by the full scores for each year.

#### 3.2.2. Independent Variables: Board Attributes

The independence of the board (BID) and gender diversity of the board (BGD) are the two independent variables considered under the study. The independence of the board is calculated as the ratio of Independent Directors to the maximum number of directors in a company (*Frias Aceituno et al., 2013; Dilling et al., 2019; Gerwanski et al., 2019; Girella et al., 2019; Hamad et al., 2017; De Andres et al., 2005*). Further, the diversity of the board is measured in terms of the ratio of Women Directors to the maximum number of directors in a company (*Frias Aceituno et al., 2013; Dilling et al., 2019; Gerwanski et al., 2019; Girella et al., 2019; Hamad et al., 2017; De Andres et al., 2005*).

#### 3.2.3. Moderating Variable: Corporate Social Responsibility (CSR)

Corporate Social Responsibility (CSR), is taken as the moderating variable of the study, in order to find how it influences the relationship between the Integrated Reporting Quality (IRQ) and Board Attributes. To measure the CSR variable the annual CSR expenditure of the corporates is considered (*Kaimal and Uzma, 2023*).

#### 3.2.4. Control Variables: Corporate Characteristics

Other than the independent variables considered for the study there are also certain other firm-specific characteristics that may have the ability to influence the quality of the integrated reports. On the basis of the previous studies, certain possible determinants of IRQ have been controlled in this study. Hence, these variables are held as control variables: *Board’s Size, Firm’s Size, Leverage, Return on Equity, Return on Asset and Market-to-Book Value*. The description and measurement of the variables are defined in the table below.

**Table 1: Description and Measurement of Variables**

Variable	Definition	Type	Measurement	Source
IRQ	Integrated Reporting Quality	Dependent Variable	A scoreboard is used to measure the quality of integrated reports of companies	IIRC, 2013 and Annual Reports
BID	Board's Independence	Independent Variable	Ratio of Independent Directors to the maximum number of Directors in a Company	CMIE Prowess
BGD	Board's Gender Diversity	Independent Variable	Ratio of Women Directors to the maximum number of Directors in a Company	CMIE Prowess
CSR	Corporate Social Responsibility	Moderating Variable	Natural Log of Annual CSR Expenditure	CMIE Prowess
BSIZE	Board's Size	Control Variable	Ratio of total Directors to the maximum number of Directors in a Company	CMIE Prowess
FSIZE	Firm's Size	Control variable	Natural Log of Total Assets of the Company	CMIE Prowess
LEV	Leverage	Control variable	Debt-Equity Ratio	CMIE Prowess
ROE	Return on Equity	Control variable	Net income to Total Equity	CMIE Prowess
ROA	Return on Asset	Control variable	Net Income to Total Assets	CMIE Prowess
MTB	Market to Book Value	Control variable	Ratio of Market Value to Book Value	CMIE Prowess

Source: Self compiled

### 3.3. Model Specification

The data collected for the study comprises of 25 companies for five years, therefore, panel data regression method is used to achieve the results. Pooled Ordinary least squares (OLS) regression analysis is applied to test the model 1, i.e., to scrutinize the influence of the board characteristics (Board's Independence and Board's Gender Diversity) on the Integrated Reporting Quality (IRQ) of the sample companies, after satisfying the necessary assumptions (Vitolla et al., 2019, 2020). Further the multiple regression is used to test model 2 and 3, to analyze the moderating effect of the corporate social responsibility on the association between board characteristics, IRQ. SPSS Statistics 27 is used to run the developed regression models. For the purpose of testing the hypotheses of the study, three distinct regression models are formulated:

$$IRQ_{it} = \beta_0 + \beta_1 BID_{it} + \beta_2 BGD_{it} + \beta_3 CSR_{it} + \beta_4 BSIZE_{it} + \beta_5 FSIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROE_{it} + \beta_8 ROA_{it} + \beta_9 MTB_{it} + \varepsilon_{it} \text{-----(1)}$$

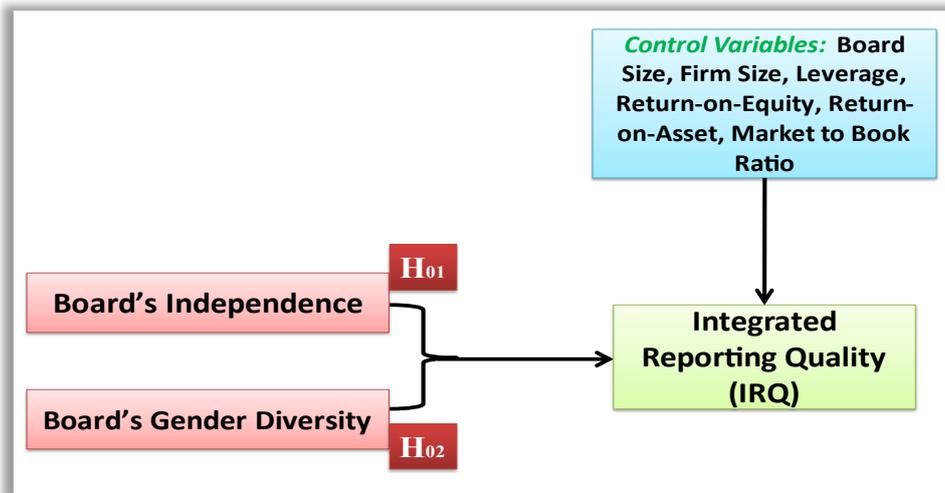
$$IRQ_{it} = \beta_0 + \beta_1 BID_{it} + \beta_2 BGD_{it} + \beta_3 CSR_{it} + \beta_4 BID_{it} * CSR_{it} + \beta_7 BSIZE_{it} + \beta_8 FSIZE_{it} + \beta_9 LEV_{it} + \beta_{10} ROE_{it} + \beta_{11} ROA_{it} + \beta_{12} MTB_{it} + \varepsilon_{it} \text{-----(2)}$$

$$IRQ_{it} = \beta_0 + \beta_1 BID_{it} + \beta_2 BGD_{it} + \beta_3 CSR_{it} + \beta_4 BGD_{it} * CSR_{it} + \beta_7 BSIZE_{it} + \beta_8 FSIZE_{it} + \beta_9 LEV_{it} + \beta_{10} ROE_{it} + \beta_{11} ROA_{it} + \beta_{12} MTB_{it} + \varepsilon_{it} \text{-----(3)}$$

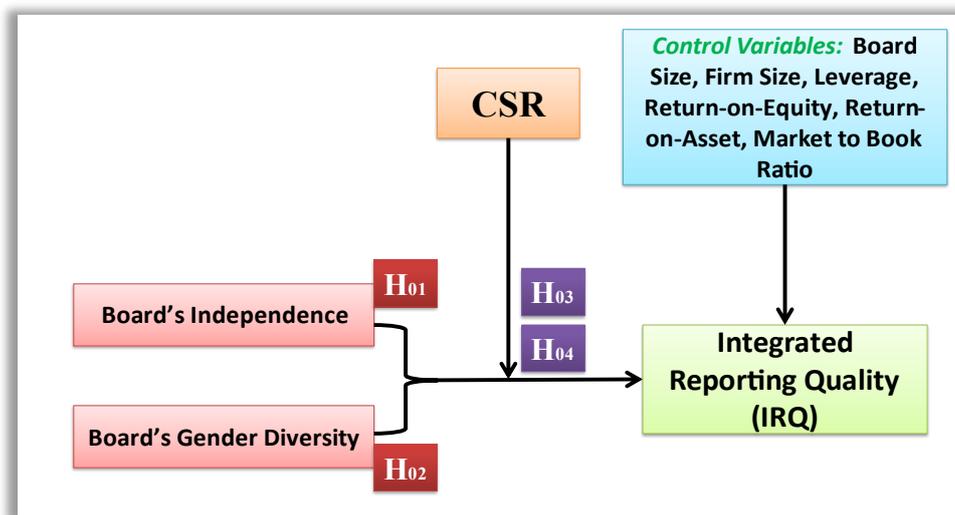
Where,  $\beta_0$  is the constant;  $\beta_1-12$  are the independent variable's slope coefficients and subscript "i" refers to number of companies i.e., 25 companies while "t" signifies the time period of the study i.e., from 2017-2022. IRQ (Integrated Reporting Quality) is the depended variable. BID (Board's Independence) and BGD (Board's Gender Diversity) are the two independent variables representing the board characteristics. CSR (Corporate Social Responsibility) is the moderating variable. BSIZE (Board's Size), FSIZE (Firm's Size), LEV (Leverage), ROE (Return on Equity), ROA (Return on Asset) and MTB (Market to Book Ratio) are the control variables.  $\epsilon$  is the random error term.

**Figure 1.**

**Research model without moderating variable**



**Figure 2. Research model with CSR as a moderating variable**



#### 4. Data Analysis, Results and Discussions

##### 4.1. Descriptive statistics

Table 2 represents the general characteristics of the dependent, independent, moderating and control variables under study. It consists of the Integrated Reporting Quality (IRQ), Board characteristics, CSR (Moderating Variable) and the firm specific control variables, along with their minimum and maximum scores, mean, median and standard deviation.

**Table 2: Descriptive Statistics**

Variables	Observation	Mean	Std. Dev.	Max	Min
Integrated Reporting Quality	125	0.6989	0.1385	0.9629	0.4814
Board's Independence	125	0.3232	0.1306	0.6666	0.0000
Board's Gender Diversity	125	0.0976	0.0545	0.2666	0.0000
Corporate Social Responsibility	125	19.8315	1.7223	23.1964	14.2209
Board's Size	125	0.7367	0.2416	1.4666	0.0088
Firm's Size	125	12.9348	1.5253	17.5311	9.9381
Leverage	125	0.9714	1.0518	6.0800	0.0000
Return on Equity	125	15.1676	7.9592	36.1300	-4.4900
Return on Asset	125	5.6103	4.0232	17.610	-3.0300
Market to Book Value	125	4.5467	12.0823	83.4500	0.3700

“Source: Self-Computed”

The above table shows that energy sector companies have the highest IR quality score of 69.89% with an average of 96.29%. Thus, it can be shown that top companies in the energy sector in India provide adequate IR disclosure, despite the absence of voluntary sanctions (*Soria and Rastogi; 2021*). The results are consistent with those of *Vitolla et al. (2020)*. High IR makes it very easy for stakeholders to predict the future performance of the project. Moreover, the average number of independent members in the board is about 32.32%, while women represent about 9.76% of the board. The descriptive statistics of the moderating variables show that the mean is 19.8315, and the standard deviation is 1.7223. Its minimum and maximum values are equal to “14.2209” and “23.1964”, respectively. Regarding the control variables, we note that the average firm size (measured by log total assets) is about 12.9348 with a minimum of 9.9381 and a maximum of 17.5311. This indicates that firms in our sample of the are large in size. Regarding the level of debt, the average leverage of the companies in question is about 97.14%, it should be noted that the sample companies have more debt. Furthermore, the average ROE of the companies in the sample is 15.17. The average board size value is 73.67%. The maximum and minimum values of ROA are 17.610 and -3.03, respectively.

#### 4.2. Test for Normality

**Table 3- Jarque-Bera Test”**

Dependent Variable	P-Value
Integrated Reporting Quality	0.0933

Source: Self-Computed

H<sub>0</sub> = The data for the study is normal

H<sub>1</sub> = The data for the study is not normal

As the p-value for the dependent variable: Integrated Reporting Quality (IRQ) in the table 3, stands at 0.0933 which is higher than 0.05, it can be depicted that the null hypothesis can be accepted at 5% significance level, ascertaining that the data considered for the study is normally distributed.

#### 4.3. Test for Multicollinearity

**Table 4: Variance Inflation Factors (VIF) Analysis**

Independent Variables	VIF Value
Board's Independence	1.841
Board's Gender Diversity	1.084
Corporate Social Responsibility	2.763
Board's Size	3.017
Firm's Size	2.984
Leverage	1.437

Return on Equity	1.572
Return on Asset	1.863
Market to Book Value	1.468

Source: Self Compiled

The values of the VIFs can be observed in the table 4, to check the existence of possible collinearity amongst the regressors. As the values of the VIFs are below 10 (*Gujarati 2015*) in all the cases, it can be concluded that the regressors do not possess any serious collinearity amongst them.

#### 4.4. Test for Heteroskedasticity

**Table 5: White's Heteroskedasticity Test**

Dependent Variable	Probability Value
Integrated Reporting Quality	0.0601

Source: Self Compiled

H<sub>0</sub> = Residuals are Homoscedastic

H<sub>1</sub> = Residuals are Heteroskedastic

As the p-value for the dependent variable: Integrated Reporting Quality (IRQ) in the table 5, stands at 0.0601 which is higher than 0.05, it can be depicted that the null hypothesis can be accepted at 5% significance level, ascertaining that the residuals are homoscedastic in nature.

#### 4.5. Linear Multiple Regression Analysis Results

**Table 6: Regression analysis results for Model: 1**

Dependent variable: IRQ Model: Pooled OLS Total Period: 5 Total cross-sections- 25 Total Observations: 125				
	coefficient	std. error	t-ratio	p-value
C	0.045	0.143	0.312	<b>0.0060</b>
Board's Independence	0.010	0.108	0.090	<b>0.0288</b>
Board's Gender Diversity	0.143	0.199	0.717	<b>0.0475</b>
Corporate Social Responsibility	0.020	0.010	2.027	<b>0.0454</b>
Board's Size	0.009	0.075	0.119	0.9053
Firm's Size	0.023	0.012	1.910	<b>0.0517</b>
Leverage	-0.016	0.012	-1.318	0.1901
Return on Equity	0.001	0.002	0.286	0.7754
Return on Asset	0.010	0.004	2.833	<b>0.0055</b>
Market to Book Value	0.004	0.001	3.829	<b>0.0002</b>
R <sup>2</sup>	0.3469			
Probability (F Statistics)	0.0000			
D W Statistics	0.5179			

Source: Self Compiled

The value of the Durbin Watson test is 0.5179 as seen in the above table. So, it can be depicted that the residual variables are free from any kind of autocorrelation as the value lies between 0 to 4 (*J. Durbin and G. Watson, 1951*).

Table 6 elucidates results of the regression analysis, which helps to understand the effect of independence of the board and its gender diversity on the quality of the integrated reports prepared by the sample corporates. The R<sup>2</sup> value

stands at 0.3469 which means that 34.69% of changes in the dependent variable (quality of IR) is interjected by the attributes of the board of directors at 1% level of significance.

$$IRQ_{it} = \beta_0 + 0.010 BID_{it} + 0.143 BGD_{it} + 0.020 CSR_{it} + 0.009 BSIZE_{it} + 0.023 FSIZE_{it} - 0.016 LEV_{it} + 0.001 ROE_{it} + 0.010 ROA_{it} + 0.004 MTB_{it} + \epsilon_{it}$$

Consequently, the hypothesis  $H_{01}$  can be accepted, revealing that good quality integrated reports are prepared and produced by the corporates having a greater number of independent directors on their board (*Vitolla et al., 2020; Raimo et al., 2020; Chouaibi et al., 2021 and Hamad et al 2020*). This means that an enduring affiliation is favoured by the executives of the corporations having good number of independent directors (*Girella et al., 2019 and Dumay et al., 2016*). As stated by *Choi et al., (2013)*, “managers provide more value-relevant information to stakeholders to help them make the correct decision”. Thus, study results sanction the findings of *Girella et al. 2019*, that dissemination of higher quality information and maintenance of transparency is promoted by corporates having large number of independent directors through integrated reports (*Feng et al., 2017; Frias-Aceituno et al., 2014; Gerwansk et al., 2019 and Busco et al., 2019*).

Further, in relation to hypothesis;  $H_{02}$ , the presence of bigger number of womenfolk on the board of the corporates has a positive but statistically insignificant impact on the quality of integrated reporting. *Hillman et al., (2002)* in their study claimed that, “Female directors are likely to support the community at large, even at the cost of financial performance” (*Bear, 2010*). In the context of Integrated Reporting, superior attentiveness by womenfolk towards the issues related to sustainability might inexorably lead the corporation to enrich the eminence of the integrated report (*Chouaibi et al. 2021 and Lorenzo and Sanchez, 2010*).

Finally, regarding the effect of control variables, it is revealed that IR quality is positively influenced by the FSIZE, advocating that large sized organizations tend to prepare better quality integrated reports (*Vitolla et al., 2020; Girella et al., 2019; Songini et al., 2020 and Raimo et al., 2020*). Further, we found that companies with a higher leverage LEV ratio tend to have a lower level of IR. Certainly, it can be said that the ROE and ROA variable turns out to be positively contributing towards dissemination of higher quality information through integrated reports by the energy sector corporates. Furthermore, the positive and significant association between the board CSR and IRQ also demonstrated in the above model indicates that companies which spend more on CSR are more conscious about their transparency, communication, and relations with their stakeholders.

**Table 7: Regression analysis results for Model: 2**

Dependent variable: IRQ Model: Pooled OLS Total Period: 5 Total cross-sections- 25 Total Observations: 125				
	coefficient	std. error	t-ratio	p-value
C	0.337	0.324	1.041	<b>0.0300</b>
BID	0.980	0.970	1.011	<b>0.0314</b>
BGD	0.163	0.200	0.815	<b>0.0417</b>
CSR	0.022	0.010	2.183	0.031
BID x CSR	0.046	0.045	1.007	<b>0.0316</b>
BSIZE	0.021	0.076	0.278	0.781
FSIZE	0.020	0.012	1.701	0.092
LEV	-0.017	0.012	-1.388	0.168
ROE	0.001	0.002	0.358	0.721
ROA	0.010	0.004	2.864	<b>0.005</b>
MTB	0.004	0.001	3.835	<b>0.000</b>

R <sup>2</sup>	0.337
Probability (F Statistics)	0.0000
D W Statistics	0.946

Source: Self Compiled

The value of the Durbin Watson test is 0.946 as seen in the above table. So, it can be depicted that the residual variables are free from any kind of autocorrelation as the value lies between 0 to 4 (*J. Durbin and G. Watson, 1951*).

Table 7 elucidates results of the regression analysis, which helps to understand how CSR moderates the association between the nonalignment of the board and the quality of integrated reports prepared by the companies. The R<sup>2</sup> value stands at 0.337, which means that 33.7% of changes in the dependent variable (quality of IR) is interjected by the explanatory variables and moderating variable at 1% level of significance.

$$IRQ_{it} = \beta_0 + 0.980 BID_{it} + 0.163 BGD_{it} + 0.022 CSR_{it} + 0.046 BID_{it} * CSR_{it} + 0.021 BSIZE_{it} + 0.021 FSIZE_{it} - 0.017 LEV_{it} + 0.001 ROE_{it} + 0.010 ROA_{it} + 0.004 MTB_{it} + \epsilon_{it}$$

The outcomes of the moderating effects of model 3 is observed in the table 7. Hypothesis H<sub>03</sub> predicts that CSR positively moderates the relationship between BID and IRQ. Hence, the results are in line with the findings of *Chouaibi et al. (2021) and Amami and Maalez (2015)*. These findings support evidence of our predictions underlying H<sub>03</sub> supposing that firms socially responsible and have greater number of Independent Directors on the Board are more likely to favour the publication of higher quality integrated reports. Therefore, we suggest that a positive effect exists between CSR and BID, which in turn generates improvement in a firm's financial performance.

**Table 8: Regression analysis results for Model: 3**

Dependent variable: IRQ Model: Pooled OLS Total Period: 5 Total cross-sections- 25 Total Observations: 125				
	coefficient	std. error	t-ratio	p-value
C	0.167	0.262	0.638	<b>0.0525</b>
BID	0.034	0.111	0.308	0.5791
BGD	2.797	2.755	1.015	<b>0.0312</b>
CSR	0.017	0.011	1.637	<b>0.0104</b>
BGD x CSR	0.132	0.137	0.966	<b>0.0336</b>
BSIZE	0.025	0.077	0.331	0.741
FSIZE	0.023	0.012	1.962	<b>0.052</b>
LEV	-0.015	0.012	-1.228	0.222
ROE	0.001	0.002	0.261	0.794
ROA	0.010	0.004	2.729	<b>0.007</b>
MTB	0.004	0.001	3.795	<b>0.000</b>
R <sup>2</sup>	0.3534			
Probability (F Statistics)	0.0000			
D W Statistics	0.5295			

Source: Self Compiled

The value of the Durbin Watson test is 0.5295 as seen in the above table. So, it can be depicted that the residual variables are free from any kind of autocorrelation as the value lies between 0 to 4 (*J. Durbin and G. Watson, 1951*).

Table 8 elucidates results of the regression analysis, which helps to understand how CSR moderates the association between the gender diversity of the board and the quality of integrated reports prepared by the companies. The  $R^2$  value stands at 0.3534, which means that 35.34% of changes in the dependent variable (quality of IR) is interjected by the explanatory variables and moderating variable at 1% level of significance.

$$IRQ_{it} = \beta_0 + 0.034 BID_{it} + 2.797 BGD_{it} + 0.017 CSR_{it} + 0.132 BGD_{it} * CSR_{it} + 0.025 BSIZE_{it} + 0.023 FSIZE_{it} - 0.015 LEV_{it} + 0.001 ROE_{it} + 0.010 ROA_{it} + 0.004 MTB_{it} + \epsilon_{it}$$

The moderating effects are shown in the above table. Hypothesis  $H_4$  forecasts that the affiliation amongst BGD and IRQ is positively (0.132) moderated by Corporate Social Responsibility (CSR) at 5% level of significance. Hence, it can be said that board's gender diversity possesses a more positive impact on the quality of IRs for the establishment's which have inculcated CSR in their business policies (*Gerwanski et al. 2019*).

## 5. Findings of the Study

- There is a positive (0.010) association between the Board's Independence and IRQ at 5% level of significance.
- Board's Gender Diversity and IRQ exhibit a positive (0.143) relationship at 5% level of significance.
- The CSR positively (0.046) moderates the association between board's independence and IRQ at 5% level of significance.
- The CSR positively (0.132) moderates the relationship between board's gender diversity and IRQ at 5% level of significance.

## 6. Conclusion

Grounding upon the perspective of agency theory, the current study intends to investigate the association between Corporate Governance Practices, in the form of board characteristics and Integrated Reporting Quality (IRQ) among selected listed Indian companies. Further the study also aims to evaluate, if this association is moderated by the Corporate Social Responsibility (CSR). For the purpose of testing hypothesis, the study has considered a sample of 25 top energy sector Indian companies listed in the BSE-500 group. The period of the study extends from 2017-18 to 2021-22. Pooled OLS regression analysis is used to test the impact of corporate governance practices on the IR quality and evaluate if CSR moderates the strength and direction of their relationship. To ascertain the IR disclosure score of the sample companies, a checklist is developed built on IR Framework devised by the International Integrated Reporting Council (IIRC) and the technique of visual content analysis is applied. Further board size, firm size, leverage, ROE, ROA, Market to Book value ratio are considered as the control variables to strengthen the panel data model. The study found that board characteristics had a positive relationship with IRQ. It is also suggested that CSR positively moderates the association between Corporate Governance and IRQ. The significance of Corporate Governance in the process of managerial decision making is the major theoretical development of this research.

The independent variables of the study: Board's Independence and Board's Gender Diversity and the moderating variable: CSR, are statistically significant. As the corporations are contending and chasing their economic growth, the concept of CSR is getting progressively important in the current universal business environment. Further, since the advent of economic scams in the business domain, apprehensions regarding the impact of CSR as a moderating variable on the quality of Integrated Reports have perceived a visible rise. Besides, *Galema et al., (2008)* stated that "a substantial part of the previously conducted research documented findings appears to reveal that, in practice, large investors, and especially institutional investors, appear to prefer investing in companies characterized with high-level CSR performance".

For practitioners, mainly the company administrators and top corporate governance bodies, the research findings hold imperative inferences and implications. A supplementary impetus is recommended by the outcomes of the study in order to detect directors who are backing an extensive and transparent disclosure. In this scenario Integrated Reporting is seen as an apt solution by the investors and other stakeholders (*Vitolla et al., 2020*). Thus, corporations are highly fortified to design their Board in such a manner which prefers moral conduct, especially in its reporting practices. To achieve a strong monitoring system and promote the development of superior integrated Reports, corporates are aiming to employ large sized boards leading to reduction in the cost of agency as well as lessening information asymmetry (*Girella et al., 2020*). Further, corporates must involve a greater number independent and

women directors in their boards (*Busco et al., 2019 and Songini et al., 2020*). Independent directors do not possess any explicit affiliation with the corporates; hence, they can express their opposing opinions on the proposals of the management and effectually implement control, leading to publication of advanced quality integrated reports (*Hamad et al., 2020*). Similarly, women are more thoughtful and considerate towards people as well as the towards issues relating to sustainability (*Chouaibi et al., 2020 and Busco et al., 2019*). This surges the degree of transparency and unambiguousness of the corporate communication through preparation of good quality IRs.

Additionally, the study outcomes propose implications for policymakers also. They must promote the existence of independent and women directors on the boards of the companies. This initiative leads to a positive influence on facilitation of superior information, which in turn boosts the investment levels the engagement of stakeholders.

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