

Impact of Corporate Governance on Environmental Information Disclosure: Evidence from India

Ruchita Verma¹, Dhanraj Sharma² and Hayatullah Jawhar³

¹Assistant Professor, School of Management, Department of Financial Administration, Central University of Punjab, Bathinda, Punjab. E-mail: ruchitaverma@cup.edu.in

²Assistant Professor, School of Management, Department of Financial Administration, Central University of Punjab, Bathinda, Punjab. E-mail: dbanrajsbarma@cup.edu.in

³Scholar, School of Management, Department of Financial Administration, Central University of Punjab, Bathinda, Punjab. E-mail: Jawharhayat@gmail.com

To cite this paper

Verma, R., Sharma, D., & Jawhar H. (2021). Impact of Corporate Governance on Environmental Information Disclosure: Evidence from India. *Orissa Journal of Commerce*. 42(1), 16-28.

Keywords

Corporate governance, Environmental information disclosures, Board size, Company size, Board independence

JEL Classification

G34, Q56, C33

Abstract: A growing number of studies have been conducted to know the influences of corporate governance on the disclosure behaviors of companies. This study aims to empirically investigate the effects of corporate governance mechanisms namely, Board Size (BS), Board Independence (BI), CEO Duality, Company Size, and Return on Asset (ROA) on environmental information disclosure (EID). Environmental information has been analyzed through content analysis and measured through dummy variables. The data of 53 most polluted companies, listed in the National Stock Exchange (NSE) of India has been studied for 5 years period (2015-16 to 2019-20) and the Feasible Generalized Least Square (FGLS) regression technique of panel data has been employed to estimate the overall result. The findings of the study indicate that Board Size (BS), CEO Duality (CD), and ROA have a significant impact on the disclosure of environmental information, while Board Independence (BI) and Company Size (CS) do not influence EID. The study suggests that the disclosure of environmental information is necessary especially for environmentally sensitive companies to be disclosed in their periodic reports on a mandatory basis.

1. Introduction

There is a growing tendency for corporate governance around the world and many countries realized the value of corporate governance. In this study, the effects of corporate governance have been studied to know its role in the disclosure of environmental information of listed firms based in India. As businesses today are rapidly increasing in their numbers which contribute to economic growth. On the other hand, it also adversely affects the environment in many ways such as greenhouse emission that affect the temperature which leads to global warming, or Carbon emission which is harmful to humans (Solikhah and Maulina, 2021). All these lead to environmental issues which need to be explored. Many

countries are concerning about this issue including India. The environmental authorities of India categorized the industries into different categories to understand their level of damage to the environment. Since the growth of industries leads to contribute positively to the economic growth of an economy. Besides, in the long term concern for the environment and society, it is also essential for the sustainability of companies (Damansara *et al.*, 2012). Information disclosure is an important and efficient way to protect the stakeholders and this can be done through corporate governance. Deciding for investment would be inadequate without concerning these environmental factors. These factors can encourage businesses to provide better information in their periodic reports regarding the environment (CFA Institute, 2019). In Europe, firms need to disclose non-financial information, social and employee-related information that affects the environment and firm performance (Mittelbach-Hörmanseder *et al.*, 2020). However, Environmental information disclosure is still non-mandatory for companies in India (Swain *et al.*, 2017). Moreover, in South Asian countries, the disclosure of environmental information is also quite weak, and fewer studies have been conducted concerning corporate governance and environmental issues. Although, some of these South Asian countries such as Bangladesh, Maldives, and Nepal are facing global warming due to a surge in temperature degree (Masud *et al.*, 2018). One of the crucial policy instruments in environmental governance is environmental information transparency and that information transparency can be achieved by environmental disclosure, this information disclosure can promote corporate environmentalism. It would also support the government in decision making regarding the environment.

This study examines the effects of corporate governance on environmental information disclosure. The prime focus of the study is on the mechanisms of corporate governance namely: Board size (BS), CEO duality (CD), Independence of board (BI), Company size (CS), and Return on asset (ROA) to predict environmental information disclosure (EID). The sample representing data from the Petroleum & Oil industry; Sugar and Distillery industries; Fertilizer & Pesticides, and Cement industry which are environmentally hesitant has been chosen, which are listed in the National Stock Exchange (NSE) of India. The data has been collected for five years and panel data techniques are applied. Since there are no sufficient empirical studies to explore various aspects of corporate governance concerning the polluting industries in India. This study would fill this gap by providing more empirical evidence in understanding the effects of corporate governance on the disclosure of environmental information. Besides, this research work is different from the work of other researchers in different dimensions, such as study period, variables, and method of analyzing data.

2. Review of Literature

The literature review is distributed into four categories which are corporate governance, corporate governance mechanisms, corporate governance attributes, environmental information disclosure & performance.

2.1. Corporate Governance

Rezaee *et al.* (2020) Investigated the relationship between the quality of environmental disclosure and its risk in the context of corporate governance as a moderating factor, based on Iran. The result of the study revealed that there is a negative significant link between environmental information disclosure quality and

the risk of the firm. However, other mechanisms of corporate governance such as CEO duality and board size do not affect the association between quality of environmental disclosure the risk of the firm. Ismail *et al.* (2019) argue that currently, the social and environmental issues comprising of the distribution of income and growth of the economy are considering widely and corporate governance plays a vital role and it indicates the involvement of a company in environmental social governance activities. Besides, this can increase the value of firms and their financial performance. Countries shall struggle in finding innovative methods to strengthen the environmental policy. The result of the study indicates that governance practices have related with the size of board diversity, and the number of independent directors on the board. Roy *et al.* (2017) examined corporate governances in the context of both environmentally hesitant and non-hesitant firms. The study found that the ownership and stockholdings by public affect the disclosure of environmental informations and found that independent directors play no role in the disclosure of environmental information. Ezhilarasi and Kabra (2017) state that corporate governance brings assurance of fair, consistent, and transparent corporate behavior to all stakeholders. This study considered board size, chief executive officer duality, domestic and foreign institutional ownerships as corporate attributes. The findings of this study indicated that foreign institutional ownership has the most critical corporate governance determinants that encourage companies to disclose environmental information. Moreover, company-specific attributes such as the size of firms and the certificate of the environment are having greater impact on the disclosure of environmental information.

2.2. Corporate Governance Mechanisms

Gerged (2021) empirical investigation of the study shows that the size of the board, number of independent directors, the separate post of CEO and chairman, and the ownership hold by foreigners are significantly linked with the environmental disclosure. Aliyu (2019) examined that corporate governance mechanisms attract investors to decide with confidence and facilitate the process to be more transparent which leads to the quality disclosures of environmental information. The study is conducted based on Nigerian public sector companies analyzed the mechanisms of corporate governance like board meetings, risk, and management committee, and remuneration of board and its impact on environmental reporting, the result of the study shows a significant relationship between the independence of the board, board meetings, and environmental reporting. However, the rest of the variables are not significant. Roy and Ghosh (2019) conducted a similar study concerning legal, political, and cultural dimensions of a country and analyzed the impact of these variables on environmental disclosure. Another study based in Saudi Arabia conducted by Al-janadi and Rahman (2012) examined disclosure of information and the external and internal corporate governance mechanism, the study finding reveals that most corporate governance mechanisms, such as non-executive directors, board size chief executive officers (CEO) duality, auditing quality, and ownership of a company, have a significant impact on the quality disclosure of environmental information.

2.3. Corporate Governance Attributes

Cui *et al.* (2020) empirically investigated the associations between board independence and environmental disclosure through content analysis concerning Multinational Companies (MNCs) in different countries.

The result of the study showed that board independence and environmental disclosure are significantly associated. Further, Sahu (2019) examined the effects of corporate governance such as the size of the board, and independent director along with board characteristics like age of the director, and firm profitability on the environmental disclosure and performance in the context of NSE listed firms in India. The findings declared that the corporate board in term of size and the age of the directors have a positive significant influence on the environmental achievements of firms. Elmagrhi and Elamer (2019) examined the impact of board diversity and board characteristics such as the numbers of directors, age, and high qualification of women directors on environmental performance. The findings revealed that the age of a woman director has a direct influence on environmental performance and other decisions related to environmental strategy implementation and disclosure. Ofoegbu *et al.* (2018) examined the impact of board attributes on environmental information disclosure across South Africa and Nigeria. The study indicates that corporate board mechanisms can significantly affect environmental disclosure. Besides, the board characteristics are linked with the amount of environmental information disclosure in the mentioned countries Glass *et al.* (2016) also investigated the role of board characteristics such as gender, especially the role of women CEOs, and women directors on the board. The finding indicates that a company that has a board with diversified gender is considered more effective than one which is not making environmentally friendly policies.

2.4. Environmental Information Disclosure

Cormier and Beauchamp (2021) studied the mediating role of Corporate governance in the North American polluting industry. The study found the inverse relations between the level of Carbon and the firm value. The study indicates that Co2 which emits by firms contributes to environmental risk. Melinda and Wardhani, (2020) found that firms these days are more concerned with environmental and social issues. The study which is based on the Asian market examined the relationship between the index of Environmental and Social Governance (ESG) and firms' valuation. The finding of the study indicated that ESG individually affects the firms' value and plays a significant role in increasing the value and sustainability of a firm. Li *et al.* (2017) found that environmentally polluted and energy generating companies are the main cause of environmental issues, and this paves the way to improve the disclosure of environmental information. However, the firm is always in doubt whether to spend on to be green or to disclose the environmental information. Still, this issue is controversial. The result indicates that fewer companies in China have the motivation to show environmental information for the improvement of environmental performance. Therefore, the study suggests that disclosure of environmental information is necessary to be mandatory for all firms, and there is a need for proper environmental policy to be made, to achieve the goal of better environmental performance. Wang (2016) examined the association between environmental information in the context of Accounting practices. Environmental information affects a firm value, and the investor would pay a premium for a firm that has good corporate governance. Environmental protection is the concern of all the stakeholders globally. Effective corporate governance can enhance operating performance and increase firm value. The result indicated the association between total disclosure of environmental information, mandatory and voluntary disclosure of environmental information, and firm value. The result clearly

indicated that corporate governance has direct link with total disclosure of voluntary and mandatory environmental information.

3. Objective and Hypotheses of the Study

The core objective of the study is to examine the impact of corporate governance mechanisms (Board Size, CEO Duality, Board Independence, Company Size & Profitability) on Environmental Information Disclosure (EID). The hypotheses are:

- H₀: Corporate governance mechanisms have no significant impact on environmental Information disclosure.
- H₁: Corporate governance mechanisms have a significant impact on environmental information disclosure.

4. Research Methodology

4.1. Sample and Source of Data

The data is collected from the annual reports of 53 listed companies of the National Stock Exchange (NSE) of India. These industries sectors are identified by the Ministry of Environment and Forests (MOEF) Government of India as the most polluting industries called the “Red Category”. In this study, four different sectors out of the most polluting industries are considered namely: Cement Industries, Fertilizer and Pesticides, Oil and Petroleum, and Sugar & Distillery industries. The period of the study is for five years (2015-16 to 2019-20).

Table 1: List of Industries Selected for the Study

<i>Industry Types</i>	<i>Effective Population</i>	<i>Selected Sample</i>	<i>% of a Selected Sample</i>
Cement	21	5	23.81%
Distillery and Sugar	29	23	79.31%
Fertilizers and Pesticides	10	10	100%
Oil and Petroleum	17	15	88.23%
Total	77	53	68.83%

Source: Compiled by the author

4.2. Description of Variables

4.2.1. Environmental Information Disclosure (EID)

EID is a dependent variable of the study, measured by the dummy values (0,1). Certain keywords such as “Environment”, “Environmental Protection”, “Green Environment” etc, have been searched within annual reports of sample companies, and based on the presence or non-presence of these environmental information “0” is given to those firms which do not disclose environmental information, and “1” is referred to those firms which provide environmental information in their annual reports.

4.2.2. Board Size (BS)

The total number of directors on the board is called board size. Board size plays a crucial role in the performance of management. Board size is measured by the total number of total directors on the board. Moreover, some studies relate the large size of the board to environmental disclosure, because the large size possesses sufficient experience and expertise to provide environmental advice. (Ezhilarasi and Kabra, 2017). On the other hand, some studies have shown a negative association of board size with environmental disclosure (Uwuigbe *et al.*, 2011). Moreover, some studies suggest that large size possesses the necessary experience and expertise to provide expert environmental advice.

4.2.3. CEO Duality (CD)

The term Chief Executive Officer (CEO) duality means when the same person holds the position of both the CEO and chairman at the same time. It is a controversial issue some researchers believe that CEO duality can positively influence the performance of firms, while others don't agree with this (Nazar, 2016). Besides, CEO duality can reduce the monitoring ability of the board, which is key to the disclosure (Ezhilarasi and Kabra 2017). CEO duality is measured by dummy variable in this study, a company where the same person takes carry the job of both CEO and chairman is given "1" and others "0".

4.2.4. Board Independence (BI)

Board Independence is measured by taking the total number of independent directors on the board. In some studies, board independence is considered significant and supposed to have a significant influence on environmental information disclosure. Besides, W. Li *et al.* (2020) also argue that board independence has a significant influence on the disclosure of environmental information.

4.2.5. Profitability (ROA)

Profitability is the ability of a company to use its resource and generate earnings. The profitability of the firm can be measured through Return on Asset (ROA) which is measured by dividing the net profit by the total asset of a firm (Sahu, 2019). ROA refers to that how a company efficiently utilize its resource (assets) and generate revenue. The higher the ROA, the higher is the efficiency of the firm in generating the income.

4.2.6. Company Size (CS)

The company size means the firm size or scale of its operation. The size of the company can be measured through different proxies such as total turnover or sales or total assets. In this study, the Size of the firm is measured by taking the natural log (LN) of the total asset of a company based on its financial statement (Ellili, 2020). The size of the firm is important because it affects the profitability and efficiency of firms.

4.3. Research Model

To examine the impact of corporate governance on environmental disclosure the panel data technique of the Feasible General Least Square (FGLS) model has been adopted. Since the data is a panel in

nature which consists of different time-series and cross-sections. Thus, there is always the possibility of endogeneity and heteroscedasticity which can affect the significance of the study model and due to these problems, the simple Ordinary Least Squares (OLS) model would not produce a significant result. To solve the problems of heteroscedasticity and autocorrelation, the FGLS model is the best fit for the panel data (Lu *et al.*, 2021) and can better estimate the overall result (Wondem and Singh Batra, 2019). The advantage of using this model is that this technique would automatically correct the problem of heteroscedasticity and autocorrelation. Thus, we can get sufficient numbers of significant variables (Siddiqui, 2012). The data is analyzed with the help of STATA-16 statistical software.

$$EID = \beta_0 + \beta_1 BS_{i,t} + \beta_2 BI_{i,t} + \beta_3 CD_{i,t} + \beta_4 CS_{i,t} + \beta_5 ROA_{i,t} + \epsilon_i \quad (1)$$

(i) refers to the individual firms, and (t)- refers to the period, (Ei) refers to Error term.

4.4. Theoretical Framework.

Based on the studies of Sahu (2019), Ofoegbu *et al.* (2018), Ezhilarasi and Kabra (2017), Rupley *et al.* (2012), Naiker and Staden (2011) corporate governance has a significant association with environmental disclosure and performance. In this study, the effects of corporate governance mechanisms are investigated to know the environmental information disclosure (EID). This relation is depicted with the help of figure 1.



Figure 1: Theoretical Framework

Source: Authors' Contribution based on Literature.

5. Data Analysis and Findings

The data is analyzed and discussed with the help of both descriptive and inferential statistics.

5.1. Descriptive Statistics

From the table 2, it is clear that on average 57.4% (30 out of 53) companies provide environmental information in their periodic reports and these companies are large companies, based on their size of total asset. The minimum board consists of 5 members while the maximum number is 22 in some

companies. On an average, the number of directors on the board are 9 directors. The result shows that on average in 42.4% of the companies the post of CEO and Chairman is the same and most of the companies (57.6%) have a separate post for the CEO and chairman. Besides, the minimum No. of independent directors on the board is 0 and the maximum number of independent directors is 8 and on average, it is about (4) independent directors. Company Size which is measured by the proxy of the natural logarithm of total asset of the firm, further converted these to binary values of (0,1) and took the median value which is 11.872, and any company values of which exceed 11.872 are considered as large company and rest of them not. The descriptive statistics show that on average 50% of the sample companies are large companies and the rest of them are small companies based on their total assets. The ROA of a company shows how the management efficiently utilizes its asset to generate earnings. ROA in this study is measured by the ratio of net profit and total asset of a company the result indicates that on average the rate of ROA is (3.7%); however, for most of the companies, this rate is (7.9%) and the maximum rate of ROA is 32.6%. The statistics show that minimum firms are not succeeded to generate sufficient incomes out of their total assets.

Table 2: Descriptive Statistics of the Variables

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>Mode</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Board Size (BS)	9.223	9	6	2.976	5	22
CEO Duality (CD)	0.424	0	0	0.567	0	1
Board Independence (BI)	4.245	4	3	1.450	0	8
Company Size (CS)	0.502	1	1	0.501	0	1
Return on Asset (ROA)	0.037	0.038	0.079	0.092	-0.316	0.326
Environmental Information Disclosure (EID)	0.574	1	1	0.495	0	1

Source: Compiled by authors

5.2. Correlation Analysis

Correlation analysis helps us to evaluate the direction of associations between variables and it is considered as an important assumption of regression analysis to be met. The data shows that there is a low correlation among independent variables which is less than 1. Hence, the strength of the relationship is very weak to moderate and considered normal showed in table 3.

5.3. Multicollinearity Test

A good regression model needs to be free of Multicollinearity. The Variance Inflation Factor (VIF) for this study is less than 10, and the Tolerance value for each variable is greater than 0.10 which indicates that the data is free from Multicollinearity (Hair *et al.*, 1995).

Table 3: Correlation Matrix

<i>Variables</i>	(1)	(2)	(3)	(4)	(5)	(6)
(1) Environmental Information Disclosure (EID)	1					
(2) Board Size(BS)	0.245	1				
(3) Board Ind. (BI)	0.146	0.685	1			
(4) CEO Duality(CD)	0.135	-0.036	-0.009	1		
(5) Company Size (CS)	-0.105	-0.047	-0.050	0.048	1	
(6) Return on Asset (ROA)	0.108	-0.039	-0.072	-0.021	0.059	1

Source: Compiled by Authors

Table 4: Multicollinearity Test Results

<i>Coefficients Model</i>	<i>Tolerance</i>	<i>VIF</i>
Board Size(BS)	0.529	1.889
Board Independence(BI)	0.995	1.005
CEO Duality (CD)	0.528	1.894
Company Size(CS)	0.992	1.008
Return on Asset (ROA)	0.991	1.009

Source: Compiled by authors

5.4. Results of FGLS Model

In this study initially, the descriptive statistics and correlation analysis has been conducted before testing the hypothesis through the FGLS model. Besides, Prob>Chi2 = 0.000 indicates that the model is significant and homoscedastic.

Table 5: Cross-sectional Time-series (FGLS) Model

<i>Variables</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Z-Statistic</i>	<i>Probability</i>
Board Size(BS)	0.046	0.013	3.450	0.001*
Board Independence (BI)	-0.013	0.027	-0.470	-0.066
CEO Duality (CD)	0.150	0.058	2.560	0.010*
Company Size (CS)	-0.018	0.010	-1.870	0.061
Return on Asset (ROA)	0.677	0.313	2.170	0.030*
Constant	0.338	0.159	2.120	0.034*

*shows that variables are significant at 5%

Wald chi2 (5) = 31.67 Log likelihood = -174.476

Prob > chi2 = 0.0000

Source: Compiled by authors

Based on table No 5 board size (BS) has a positive significant impact on EID. The empirical findings of Sahu (2019) are also consistent with our study. Besides, Naiker and Staden (2011), argued that good environmental performance of the firm is linked with a higher number of directors on the board. Thus, based on our empirical analysis it is clear that the model truly estimated the desired output. Moreover, the descriptive statistics also support the empirical findings, based on which companies where the median value of their board size is 9 or greater than 9 are more interested to disclose environmental information in their periodic reports. In this study, result rejects the null hypothesis (H_0) because the $P < 0.05$. Thus, the board size has a significant influence on EID. Board Independence (BI) is statistically insignificant based on the value of $P > 0.05$ and reject the alternative hypothesis (H_1). However, the study of (Lagasio and Cucari, 2019) opposes our work. In addition, Muttakin and Subramaniam, (2015) found a negative association between board independence and EID. Next, CEO duality (CD) in the study is statistically significant at 5% as those companies where CEO and Chairman hold the same position can positively affect the environmental information disclosure because the $P < 0.05$ and by confirming the alternative hypothesis. Further, the study of Al-janadi and Rahman (2012) also supports our study. Company Size (CS), which is considered a control variable, and the result indicates that it is also insignificant since the $P > 0.05$. Thus, we accept the null hypothesis that there is no relationship exist between the company size (CS) and EID. However, Brammer and Pavelin (2006) found that Company Size (CS) and voluntary information disclosure have a positive association. Furthermore, ROA is the measure of the profitability of the company which is significant at 5% based on the P-value of $0.030 < 0.05$. It indicates a positive association with EID, hence the higher the ratio of ROA of a company the higher a company would disclose environmental information. Thus, we confirm the alternative hypothesis (H_1) that EID and ROA have significant association. The study of Iatridis (2013) also supports our study findings.

6. Conclusion

In this empirical study, the effects of corporate governance have been studied to know environmental information disclosure based in India. The industries which have been selected for the study are environmentally polluting and recognized by the Ministry of Environment and Forest, Govt of India as a “Red category industry”. There are various categories of polluting industries that are classified as Red, Orange, Green, and White on the basis of their emission of significant pollutions or hazardous wastes. Since, disclosing environmental information is always a win-win situation and any company which discloses environmental information can attract stakeholders and this can help companies in their present and future. Thus, a company that discloses environmental information and concern for the protection of the environment is doing their business more responsibly as compared to those who don't address environmental information. The findings of this study indicate that those firms which have large board size (BS) are more likely to provide environmental information in their annual reports. Secondly, CEO duality has also a significant role in disclosing environmental information. From the descriptive statistics it is clear that 50.2% of the companies are large (based on the total asset), which also supports our result that usually, large companies are more interested in disclosing environmental information. Finally, EID is correlated with the profitability (ROA) of a firm, which means if a company

generates a higher return out of the invested funds (total assets) would highly interested to disclose information regarding the environment in their periodic reports.

7. Implications and Suggestions

Environmental issues have attracted the concern of many governmental and policy-making authorities across the world. From the literature review, we understood that the disclosure of environmental information is still not compulsory for industries in many countries and still there are no certain guidelines on disclosure of environmental information. Besides, the disclosure requirement is further subject to the country's law and regulations. This study provides a clear understanding of the role of corporate governance on the disclosure of environmental information. The pieces of evidence of various studies indicate that most of the corporate governance variables affect both environmentally hesitant and other types of companies such as non-financial firms (Sahu,2019) and firms which are not environmentally hesitant (Roy *et al.*, 2017). Thus, this study would help the policymakers, shareholders, investors, financial analysts, and research scholars to enhance their understandings of the issue of disclosure of environmental information in general and specifically the level of environmental disclosure by firms in the Indian context. The empirical findings of the current study suggest that the disclosure of environmental information is necessary especially for environmentally sensitive companies to be disclosed in their periodic reports. Besides, Governmental authorities should provide a clear guideline on the disclosure of environmental information to ensure responsible business.

8. Limitations and Further Scope of the Study

The key limitations of the study are that environmental information is analyzed through content analysis. Whereas a comprehensive index of environmental information disclosure and Corporate governance may be developed to explore this issue more widely. Further, less number of independent variables related to corporate governance are taken into considerations, adding further variables might produce a different result.

References

- Al-Janadi, Y., Rahman, R. A., & Omar, N. H. (2012). The level of voluntary disclosure practices among public listed companies in Saudi Arabia and the UAE: Using a modified voluntary disclosure index. *International Journal of Disclosure and Governance*, 9(2), 181–201. <https://doi.org/10.1057/jdg.2011.19>
- Aliyu, U. S. (2019). Board characteristic and corporate environmental reporting in Nigeria. *Asian Journal of Accounting Research*, 4(1), 2–17. <https://doi.org/10.1108/ajar-09-2018-0030>
- Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance and Accounting*, 33(7–8), 1168–1188. <https://doi.org/10.1111/j.1468-5957.2006.00598.x>
- Cormier, D., & Beauchamp, C. (2021). Market incidence of carbon information disclosure in the oil and gas industry: the mediating role of financial analysts and governance. *Journal of Financial Reporting and Accounting*, 19(2). <https://doi.org/10.1108/JFRA-10-2020-0302>
- Cui, X., Peng, X., Jia, J., & Wu, D. (2020). Does board independence affect environmental disclosures by multinational corporations? Moderating effects of national culture. *Applied Economics*, 52(52), 5687–5705. <https://doi.org/10.1080/00036846.2020.1770681>

- Damansara, J., Heights, D., Sciences, M., Adnan, M. A., Yogyakarta, U. M., Kameel, A., & Meera, M. (2012). *Impact of Corporate Governance on Social and Environmental Information Disclosure of Malaysian Listed Banks/ : Panel Data Analysis*. 4(1), 1–24. <https://doi.org/10.5296/ajfa.v4i1.810>
- Ellili, N. O. D. (2020). Environmental, social, and governance disclosure, ownership structure and cost of capital: Evidence from the UAE. *Sustainability (Switzerland)*, 12(18). <https://doi.org/10.3390/su12187706>
- Elmagrhi, M. H., & Elamer, A. A. (2019). RESEARCH ARTICLE *A study of environmental policies and regulations, governance structures, and environmental performance/ : The role of female directors*. October 2018, 206–220. <https://doi.org/10.1002/bse.2250>
- Elzhilarasi, G., & Kabra, K. C. (2017). The impact of corporate governance attributes on environmental disclosures: Evidence from India. *Indian Journal of Corporate Governance*, 10(1), 24–43. <https://doi.org/10.1177/0974686217701464>
- Gerged, A. M. (2021). Factors affecting corporate environmental disclosure in emerging markets: The role of corporate governance structures. *Business Strategy and the Environment*, 30(1), 609–629. <https://doi.org/10.1002/bse.2642>
- Glass, C., Cook, A., & Ingersoll, A. R. (2016). *Do Women Leaders Promote Sustainability? Analyzing the Effect of Corporate Governance Composition on Environmental Performance*. 511(JUNE 2014), 495–511. <https://doi.org/10.1002/bse.1879>
- Ismail, A. M., Hajar, Z., Adnan, M., Fahmi, F. M., Darus, F., & Clark, C. (2019). *Board Capabilities and the Mediating Roles of Absorptive Capacity on Environmental Social and Governance (ESG) Practices*. 10(3), 11–30. <https://doi.org/10.5430/ijfr.v10n3p11>
- Lagasio, V., & Cucari, N. (2019). Corporate governance and environmental social governance disclosure: A meta-analytical review. In *Corporate Social Responsibility and Environmental Management*, 26(4), 701–711. John Wiley and Sons Ltd. <https://doi.org/10.1002/csr.1716>
- Li, D., Zhao, Y., Sun, Y., & Yin, D. (2017). Human and Ecological Risk Assessment/ : An International Corporate environmental performance, environmental information disclosure, and financial performance/ : Evidence from China. *Human and Ecological Risk Assessment*, 23(2), 323–339. <https://doi.org/10.1080/10807039.2016.1247256>
- Lu, J., Javeed, S. A., Latief, R., Jiang, T., & Ong, T. S. (2021). *The Moderating Role of Corporate Social Responsibility in the Association of Internal Corporate Governance and Profitability/ ; Evidence from Pakistan*, 18(11) <https://doi.org/10.3390/ijerph18115830>
- Masud, M. A. K., Nurunnabi, M., & Bae, S. M. (2018). The effects of corporate governance on environmental sustainability reporting: empirical evidence from South Asian countries. *Asian Journal of Sustainability and Social Responsibility*, 3(1). <https://doi.org/10.1186/s41180-018-0019-x>
- Mittelbach-Hörmanseder, S., Hummel, K., & Rammerstorfer, M. (2020). The information content of corporate social responsibility disclosure in Europe: an institutional perspective. In *European Accounting Review*, 30(2), 309–348 <https://doi.org/10.1080/09638180.2020.1763818>
- Muttakin, M. B., & Subramaniam, N. (2015). Firm ownership and board characteristics: Do they matter for corporate social responsibility disclosure of Indian Companies? *Sustainability Accounting, Management and Policy Journal*. 6(2). <https://doi.org/10.1108/SAMPJ-10-2013-0042>
- Nazar, M. C. A. (2016). Does CEO Duality affect the Firm Performance? Evidence from Sri Lanka. *International Journal of Advances in Agriculture Sciences*, 15(2), 5–14.

- Ofoegbu, G. N., Odoemelam, N., Okafor, R. G., Ofoegbu, G. N., Odoemelam, N., & Okafor, R. G. (2018). Cogent Business & Management Corporate board characteristics and environmental disclosure quantity / : Evidence from South Africa (integrated reporting) and Nigeria (traditional reporting) Corporate board characteristics and environmental disclosure qua. *Cogent Business & Management*, 5(1), 1–27. <https://doi.org/10.1080/23311975.2018.1551510>
- Rezaee, Z., Alipour, M., Faraji, O., Ghanbari, M., & Jamshidinavid, B. (2020). Environmental disclosure quality and risk: the moderating effect of corporate governance. *Sustainability Accounting, Management and Policy Journal*, 11(6) <https://doi.org/10.1108/SAMPJ-10-2018-0269>
- Roy, A., & Ghosh, S. K. (2019). *Determinants of Corporate Environmental Disclosure from an Asian Perspective* 8(2), pp 171-189). <https://doi.org/10.1177/2277975218784796>
- Roy, Abhijit; Ghosh, S. K. (2017). EBSCOhost | 124771648 | Corporate Environmental Disclosure, Corporate Governance and Firm Characteristics: Evidence from Polluting and Non-Polluting Sectors in India. *IUP Journal of Corporate Governance*, 16(3), 26–53. <https://web.a.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=09726853&AN=124771648&h=ww34tBUr0STSeLDEP444GKIFVp7ANYqLoywfvUXtb0iVWZvNOHjVvh1739KKb4t4jxMw8mBDU7KoyrmFe%2BCKpQ%3D%3D&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3Fdirect%3Dtrue%26profile%3Dehost%26scope%3Dsite%26authtype%3Dcrawler%26jrnl%3D09726853%26AN%3D124771648>
- Sahu, T. N. (2019). *Corporate Governance , Firms ' Characteristics and Environmental Performance Disclosure Practices of Indian Companies*, 12(211), 142-155. <https://doi.org/10.1177/0974686219881091>
- Siddiqui, S. S. (2012). Capital structure determinants of non-bank financial institutions (NBFIs) in Bangladesh. *World Review of Business Research*, 2(1), 60–78. <http://www.wrbpapers.com/static/documents/January/2012/5.Sayla.pdf>
- Solikhah, B., & Maulina, U. (2021). Factors influencing environment disclosure quality and the moderating role of corporate governance. In *Cogent Business and Management*, 8 (1). <https://doi.org/10.1080/23311975.2021.1876543>
- Swain, R. K., Kanungo, R., & Dash, S. R. (2017). Environmental Disclosure Practices in India/ : Evidence from Top 50 Companies of Bse. *IOSR Journal of Business and Management*, 19(9), 5–14. <https://doi.org/10.9790/487X-1909050514>
- Uwuigbe, U. N., Egbide, B., & Ayokunle, A. M. (2011). The Effect of Board Size and Board Composition on Firms Corporate Environmental Disclosure/ : A Study of Selected Firms in Nigeria. *Economica*, 7(5), 164–176.
- Wang, M. (2016). The relationship between environmental information disclosure and firm valuation/ : the role of corporate governance. *Quality & Quantity*, 1135–1151. <https://doi.org/10.1007/s11135-015-0194-0>
- Wondem, B. A., & Singh Batra, G. (2019). The Impact of Corporate Governance Practices on Corporate Financial Performance in Ethiopia. *International Journal of Accounting Research Int J Account Res*, 7(1), 196. <https://doi.org/10.35248/2472-114X.19.7.196>