EMPIRICAL RESEARCH PAPER

Vol. XIV, No. I; March - August, 2021 Print ISSN: 0975-024X; Online ISSN: 2456-1371

Impact of Firm Attributes on Environmental Information Disclosure: An Empirical Study of NSE Listed Indian Firms

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Abstract

The present study uses exploratory design to investigate the relationship and impact between the firm attributes (Firm size, leverage, ownership and ISO certification) and the level of environmental disclosure. For the study, 62 companies are selected as final sample from NSE 100 index as on 31st March 2019. Based on prior literature review, Environmental Disclosure Index (EDI) has been taken as dependent variable and Firm size, leverage, ownership and ISO certification have been taken as independent variables in the research model. Correlation and Multiple regression analysis are used as statistical technique to find out the association and impact between dependent and independent variables. The evidence of empirical result shows that firm size, ownership and ISO certification have significant impact on level of environmental disclosure at 5% level of significance but firm leverage has been found to be statistically insignificant.

Keywords: Environmental Disclosure Index (EDI), Environmental Information Disclosure (EID), Firm attributes.

Introduction

Economic entities have been iterating on different policies and practices to accomplish the ultimate long run goal of sustainability and executing a blend of activities and corporate social responsibility activities are not an exception. Within the purview of corporate governance and corporate social responsibility, corporates are showing their sensitivity to environment by disclosing information regarding different measures and actions taken through environmental disclosure report. However, the level and magnitude of environmental disclosure differ among countries; companies; sectors and at different period of time (Gray et al., 2001 & Hackston and Milne, 1996). In general, environmental information helps companies to meet their environmental obligations viz. regulatory requirements; environmental performance disclosure and management of potential liabilities due to damage to the environment. Varied group of stakeholders have the conviction that knowledge and information about corporate social responsibility is beneficial to external users.

Companies adopting environmental disclosure practices are aware of the benefits of it and businesses not reporting yet on their operation are under tremendous pressure. KPMG International

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How to cite this article: Kumar, S. (2021). Impact of Firm Attributes on Environmental Information Disclosure: An Empirical Study of NSE Listed Indian Firms. Purushartha, 14(1), 116-124
Source of support: Nil
Conflict of interest: None

Survey of Corporate Responsibility Reporting 2011 documents that it is the moral obligation of companies for society. On the other hand, companies adopting corporate responsibility reporting practices are gained from direct cost savings and improved market reputation (KPMG, 2011). Toms (1999) reports that companies disclosing environmental information have a better social picture; better stock market performance and consumer market efficiency. However, there lies disparity among companies in respect of environmental disclosure practices and its determinants. The level of disclosure seems conditional upon different characteristics exhibited by companies per se.

Various firm characteristics are important determinants of environmental disclosures and is documented in previous literature (Fifka, 2012 & Fifka, 2013). The firm characteristics includes firm size (proxied by total sales, total assets, total revenue), leverage (proxied by debt/equity), ownership and ISO certification etc. Researchers find scope in observing and are interested to study the influence of firm characteristics on environmental disclosure by attempting to find out association between firm characteristics and level of environmental disclosure.

Literature Review & Hypothesis Development

Environmental disclosure encompasses the process of dissemination of environmental information in environmental report by either complying with relevant regulatory framework as a mandatory disclosure or making it a part of voluntary disclosure. Alternatively, environmental disclosure is a way of communicating environmental information publicly to different stakeholders having any direct or indirect bearing with the entity. Good corporate governance has one of the pillars of transparency and disclosure. Different stakeholders use environmental disclosure in their decision-making process. Disclosure is also defined as "the communication of economic information, whether financial or non-financial, qualitative or otherwise concerning a company's financial position and performance" (Owusu-Ansah, 1998).

Environmental disclosure falls into two broad categories: mandatory and voluntary. Mandatory disclosure includes information disclosed in order to comply with the requirement of laws, standards and regulations. On the other hand, voluntary disclosure is additional information after mandatory disclosure. Voluntary disclosure is defined by Meek et al., (1995) as "free choice on the part of the company's managements to provide accounting and other information deemed relevant to the decision needs of users of uses of their annual reports." Environmental disclosure information covers the preparation and provision of information for use of multiple stakeholders (both internal and external) on the environmental status and the performance of their company (Brophy & Starkey, 1998).

Lang and Lundholm (1993) said that corporate attributes can determine the quality of the information disclosed and every corporation has different attributes that might have an impact on the disclosure process.

Firm Size and Environmental Information Disclosure

Large companies seem to disclose more information on environmental activities in their annual report as compared to small companies for a variety of reasons. The agency cost theory states that campaigns for environmental disclosure can be used to reduce political costs which are conditional upon size of the company and the relation is positive. Larger companies face greater threats to their legitimacy compared with smaller companies as a result of their scales and have disclosed more information (Chaklader and Gulati 2015; Cho et al. 2012; Cho and Patten 2007; Clarkson et al. 2008; Patten 2002) than smaller companies.

Most of the empirical studies have found significant positive relationship between size of the company and the level of environmental disclosure in the corporate annual report in both develop and developing countries (Brammer and Pavelin 2008; Haddock-Fraser and Fraser 2008, Choi, 1999; Cormier & Gordon 2001; Das 2008, Hackston and Milne 1996; and Patten 2002). However, Inun Jariya (2015) found significant negative relationship between disclosure level and size of the company and other researchers like Roberts (1992) and Davey (1982) noted that the size of the company has not significantly explain an association with the level of corporate social and environmental disclosure and its variability.

The aforementioned literature and inferences regarding firm size and environmental disclosure information lead to the following hypothesis (Stated in the alternative form):

H_1: There is a significant positive relationship between the size of a firm and its environmental disclosure.

Leverage and Environmental Information Disclosure

Roberts (1992) argues that firms with higher financial leverage will see their creditors having greater influence on corporate policies stemming from their ability to recall loans or prevent the extension of further credit. As a consequence, managers are more willing to reveal information regarding corporate social activities in response to expectations of creditors. Hossain et al. (1998) also note that financial leverage has a role to play: a higher degree of dependence on debt encourages a firm to reveal more environmental information. The creditors of a firm with higher financial leverage become more influential and managers will step up the response to their demands for environmental information. From the creditors' point of view, when a firm's activities generate a negative impact on the environment, the firm will face penalties or fines, outcomes, which can also undermine the creditors' rights and interests. For this reason, creditors are highly concerned about activities of the firm. They tend to call for more corporate integrity and demand the firm disclose more so as to keep them updated on the latest status and guard against opportunistic behaviour. Otherwise, creditors will seek alternatives and may even withdraw from the firm's stakeholder system.

The aforementioned literature and inferences regarding firm leverage and environmental information disclosure lead to the following hypothesis (Stated in the alternative form):

H_2 : There is a significant positive relationship between firm’s leverage and its environmental disclosure.

Ownership and Environmental Information Disclosure

In terms of internal stakeholder groups, Keim (1978) suggests that with more diffused ownership structure, stakeholders will make broader and more diverse demands for more transparency in terms of corporate activities. This is particularly true with regard to social activities, which receive the most stockholder attention. When share ownership is diffused, more monitoring is required and firms will disclose more environmental information (Eng and Mak, 2003). Ullmann (1985) also suggests that with stock diversification, shareholders will be more concerned about social and environmental activities and therefore push the firm to demonstrate greater social responsibility. The stakeholder agency theory also suggests that firms tend to reveal more information so as to reduce information imbalance (Hill and Jones, 1992). On the other hand, for firms with more concentrated ownership structure, the less information they reveal, the more they save on information disclosure costs.

The aforementioned literature and inferences regarding ownership structure and environmental information disclosure lead to the following hypothesis (Stated in the alternative form):

H_3 : There is a significant negative relationship between ownership of a firm and its environmental disclosure.

ISO Certification and Environmental Information Disclosure

A common certification process that recognizes environmental compliance is the ISO 14001: Environmental Management System. There is no specific requirement to get this certification but some companies choose to go through the rigorous process of getting certified in order to be seen as environmentally compliant which thus signifies the strategic posture adopted by the firm.

The aforementioned literature and inferences regarding ISO Certification and environmental information disclosure lead to the following hypothesis (Stated in the alternative form):

H_4 : There is a significant positive relationship between ISO 14001certification of a firm and its environmental disclosure.

Research Methodology

The present study is based on secondary data. Secondary data have been collected from annual reports of companies listed with NSE, company website and money control.com. For the purpose of secondary data analysis, a set of 100 companies was taken from National Stock exchange representing NSE 100 index as on 31st March 2019. Further, financial and services companies are excluded from sample and thereafter two companies are eliminated from sample due to non-availability of requisite financial data. The final sample of 62 companies are taken for the study. The period of study has taken four years into consideration i.e. financial year 2014-15 to 2017-18. Multiple regression and Correlation techniques have been used to find the association and impact of firm attributes on environmental disclosure information of firm.

Identification and Measurement of variables
Dependent Variable

The level of voluntary disclosure information is used as dependent variable in the study. The level of voluntary disclosure information is measured through environmental disclosure index (EDI). Various approaches are available to develop a scoring scheme to determine the level of voluntary disclosure information in corporate annual reports from the previous research work. Among the alternative approaches, unweighted disclosure approach has been used to measure the extent of environmental disclosure information in the company's annual reports where an item scores one if disclosed and zero if not disclosed. An unweighted environmental disclosure index is the ratio of the value of the number of items a company discloses divided by total value that it could disclose.

In the unweighted environmental disclosure index, disclosure of individual items has been treated as a dichotomous variable. Here, the only consideration is whether or not a company discloses an item of environmental disclosure information in the annual report. If a company discloses an item of environmental information in its annual report. If a company discloses an item of environmental disclosure information in its annual report it awarded '1' and if not, it awarded '0'.

The disclosure practices of companies regarding voluntary environmental disclosure information have been analysed based on item- wise disclosure. The environmental disclosure index includes 19 items based (Wiseman 1982) on previous studies and literatures.

Independent Variables

The following table shows the measuring tools and predicted sing that this research uses based on the prior mentioned literature and these are the most commonly used measurements.

Variables	Measurement	Predicted Sign
Firm Size	Natural log of total assets	+
Leverage	ratio of debt and equity	+
Ownership	shareholding of promoters' group	–
ISO Certification	Dummy used 1 if firm awarded with ISO Certification, 0 otherwise	+

Regression Model

Regression is used to study the impact of different firm characteristics on the extent of environmental disclosure using the following model:

$$EDI_i = \alpha_i + \beta_1\ Size_i + \beta_2\ Leverage_i + \beta_3\ Ownership_i + \beta_4\ ISO_i + e_i$$

where as,

α is constant and β_1, β_2, β_3, β_4 are the coefficients of independent variables of firm size, leverage, ownership, audit and ISO certification.

e_i represents error.

The variables in the regression above are defined as follows:

EDI is a score of total environmental disclosure.

SIZE is the firm size, measured as the natural logarithm of total assets.

LEVERAGE is the financial leverage ratio, measured as the ratio of debt and equity.

OWNERSHIP is the shareholder ownership, measured as the shareholding of promoters' groups (Indian and Foreign promoters' groups).

ISO is a dummy for certification of ISO 14001: 1 if firm awarded with ISO Certification, 0 otherwise.

Empirical Result and Discussion

Table 1: Descriptive Statistics of Variables

Variables	Mean	Minimum	Maximum	Std. Dev
EDI	4.064	.25	7.50	1.74
SIZE	4.307	3.025	5.697	.5832
LEVERAGE	.305	.0	2.322	.4602
OWNERSHIP	54.143	.350	79.937	16.181
ISO	.721	0	1	.370

Source: Computed

Table 1 shows the descriptive statistics of the variables taken for the study. The dependent variable EDI level indicates a minimum score of 0.25 to a maximum of 7.50 with mean value of 4.064 indicating low level of environmental disclosure in sample companies. It is evident that there are large variations in the volume of environmental disclosure information of the sample companies in their annual reports. With regards to the independent variables, table shows that the mean value of SIZE (measured in natural logarithm of total assets) ranges from a minimum of 3.025 to a maximum of 5.697 with a mean value of 4.307. The mean value of firm leverage (measured in debt-equity ratio) is 0.305 with a maximum of 2.322 and minimum of 0. The ownership of shareholder has a minimum of 0.350, maximum of 79.937 and mean value of 54.143 indicating that majority of the firms in the sample have high ownership concentration. The mean value of ISO certification is 0.721 with a range of 0 to 1. The mean value of ISO certification indicates that most of sample companies are awarded with ISO Certificates.

Table 2: Correlation of the variables entered in the regression analysis for the study

Correlation	EDI	SIZE	LEVERAGE	OWNERSHIP	ISO
EDI	1				
SIZE	.522**	1			
LEVERAGE	.197	.453**	1		
OWNERSHIP	-.271*	-.134	-.084	1	
ISO	.487**	.380**	.072	-0.47	1

Source: Computed

** implies Correlation is significant at 0.01 level (2-tailed).

* implies Correlation is significant at 0.05 level (2-tailed).

Table shows the correlation matrix between the variables used in the study. Correlation matrix explores the relationship between variables representing firm characteristics and environmental disclosure index in the study. Correlation coefficient measures the strength and direction of linear relationship between two variables. Strength of correlation is described using the guide suggested by Evans (1996) for absolute value of ‘r’. The results of Pearson correlation analysis indicate that the level of environmental disclosure is positively correlated with firm size, leverage, and ISO certification respectively with a correlation coefficient 0.522, 0.197, and 0.487. But shareholder ownership is negatively correlated with level of environmental disclosure (r = -.271). All the variables representing firm characteristics have statistically significant relationship with environmental disclosure index at 1% and 5% level of significance.

Based on the outputs of correlation analysis, regression analysis is applied to study the impact of different variables representing firm attributes on the level of environmental disclosure and the outputs are documented in Table 3.

Table 3 show the results of OLS regression analysis, testing the relationship between the level of environmental disclosure and firm attributes. According to the table, the F- statistics is 9.946 (p-value = 0.000) and this result supports that the estimated model is statistically significant. While the R- Square of 0.411 indicates that the independent variables explain 41.10% of the variability in the level of environmental disclosure.

Table 3: Outputs of Regression Analysis

Variable	Unstandardized Coefficient	Std. Error	Standardized Coefficients	t-stat.	p-value
Constant	-.647	1.630		-.397	.693
SIZE	1.111	.372	.372	2.989	.004
LEVERAGE	-.050	.435	-.013	-.114	.909
OWNERSHIP	-.022	.011	-.206	-2.009	.049
ISO	1.581	.520	.337	3.040	.004
R	.641				
R-Square	.411				
Adjusted R-Square	.370				
F-statistic	9.946				
p-value of F-Statistic	.000				

The result also indicates that individual coefficients of firm size, leverage, ownership and ISO certification are .372, -.013, -.206 and .337 respectively (with t- value = 2.989, -.114, -2.09, 3.040 respectively). This is indicating that there is a positive relationship between firm size and level of environmental disclosure and implies that the size of the firm has significant positive impact on level of environmental disclosure (p-value = 0.004).

Leverage is found to have positive relationship with environmental disclosure information but have found negative insignificant impact on environmental disclosure (p = 0.909). The value of coefficient of ownership is -0.206 which shows a negative relationship with level of environmental disclosure and found to be significant impact on level of environmental disclosure (p = 0.049).

The β-value ISO certification is 0.337 indicates a positive relationship with level of environmental disclosure and the p-values 0.004 shows statistically significant impact at 5% level of significance.

Conclusion

The present study explores the impact of different firm attributes on environmental disclosure practices in Indian companies. The empirical results assert that over the four years, that firm size, leverage and ISO certification are positively associated with dependent variable but only ownership is found to be negatively related with dependent variable.

Further, the results also indicate that size has significant impact on the extent of environmental disclosure in four-years of analysis. Hence, it implies that alternative hypothesis H1 is accepted. Similarly, it is observed that ownership and ISO Certification has significant impact on the extent of environmental disclosure at 5% level of significance. Hence, it is asserted that alternative hypothesis H_3 and H_4 are accepted. But, firm leverage are not found to has significant impact on the level of environmental disclosure during the period of study. Hence, it is asserted that alternative hypothesis H_2 is not accepted. On the basis of the results of hypotheses, it can be concluded that different firm characteristics have substantial impact on the level of environmental disclosure.

Environmental disclosure by companies is seen as a sign of transparency or creditability, which helps firm attract new investors. As a result, even a minor change in a company's environmental disclosure level might have an impact on the amount of money invested in its stock, and vice versa. As a result, businesses must pay close attention to their environmental disclosure level and devote adequate resources to it.

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