Do Social and Environmental Disclosures Increase Firm Value ? Evidence from Indian Companies

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Abstract

There is a clear shift in the way the companies report their performance through the communications with their stakeholders. Moving from mere profit, the companies are increasingly showing their non-financial performance in terms of sustainability and social responsibility. Companies not only want to just spend on sustainability, but also like to project their activities to gain image among the stakeholders ; more often with a separate set of report called corporate sustainability report, which is based on the triple bottom-line (profit, people, and planet). This study focused on understanding the corporate social and environmental reporting trends of Indian non-financial companies and the impact on market valuation. The sample constituted of companies in the BSE-100 index and data for 5 financial years - from FY2010 to FY2014 - were used. This period was chosen as it witnessed several regulatory changes in the triple bottom line reporting in the form of new Companies Act, 2013 and Clause 55 of the listing agreement. Paired *'t'* test and panel data regression model were used for analyzing the data. This study found that the level of social and environmental disclosures has significantly improved post business responsibility reporting and positively significantly influenced market valuation.

Key words : sustainability reporting, business responsibility reporting, social and environmental disclosures, BSE 100 Index, Tobin Q, panel data regression

JEL Classification : G30, M1, M41

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Corporate financial reporting has been a pillar of an efficient capital market when it tries to narrow down the information gap between the managements and the external stakeholders. The perception that an enterprise is accountable only for its investors is going through a change. The enterprises are expected to do responsible business and embrace all the stakeholders connected with them. In line with this, financial reporting has undergone significant changes in the recent past. From the time when companies needed to disclose only two financial statements to the current scenario, where a large number of companies are voluntarily disclosing information such as the gender ratio of employees, equal opportunity policy, etc., there has been a paradigm shift on what the stakeholders require from the financial reporting of a company.

The corporates are now expected not just to make profit or increase their market value, but also strive to fulfill their social obligations. This brought in a concept - triple bottom line reporting - developed by Elkington (1997) that proposed a framework for reporting performance in sustainable development. Under the triple bottom-line approach, the companies disclose their performance in three Ps - 'profit, people, and planet.' Profit under this framework has a wider implication of not just the net income, but other metrics such as economic value added and

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the monetary contribution of a company to the national exchequer. People perspective includes the initiatives of the companies towards the welfare of the employees and the society as a whole. The planet aspect covers the initiatives of the companies in environmental aspects such as carbon emissions, use of water resources, etc.

Considering the importance and the need for expertise in the area of sustainability disclosure (SD), various institutions came up to assist the companies in the process. Global Reporting Initiative (GRI) is one such institution, which has developed guidelines, the recent one called as G4, which is adopted by a large number of companies around the world in their corporate sustainability reports. It is a work for the companies, and they face the challenge of incurring substantial cost and efforts to collect, compile, and report granular level of details on their sustainability performance, and that too, voluntarily. The critics of corporate sustainability reporting feel that this may provide for companies doing superficial work to over- exemplify their efforts and use this as a public relation vehicle.

The KPMG survey (2013) on the practice of sustainability reporting indicated some interesting trends. As per this, the United States of America leads in sustainability reporting across the world. When it came to the quality of SD, Moller Meserk (Denmark), BMW (Germany), and CISCO Systems (U.S.) got the first three ranks. There has been a significant increase of this practice in the Asia Pacific region. The highest growth rate of sustainability reporting has been in India where since a 2011 survey, 53% more companies publish corporate sustainability reporting.

The stock market regulator, Securities and Exchange Board of India (SEBI), also came up with the "National voluntary guidelines on social, economic, and environmental responsibilities of business" under Clause 55 of the listing agreement called as Business Responsibility Reporting (BRR). BRR is mandatory only for the top 100 companies listed in BSE and NSE as on 31st March, 2012. As per this, the companies have to disclose information such as spending on corporate social responsibility ; present the data on grievance redressal mechanism ; divulge the details on sustainable sourcing of products ; provide information on the diversity amongst the employees in terms of sex, disability, age, etc., and reveal the measures undertaken to tackle environmental related issues. This move clearly is an outcome of the increasing importance of sustainability reporting in India.

The present study analyzes the trends in sustainability reporting of Indian companies, particularly in the pre and post implementation of BRR through an index named as Social and Environmental Disclosure Index (SEDI) and examines the impact of such disclosures on firm valuation.

Review of Literature

This section discusses the literature on the social and environmental disclosures. It starts with various theories on motivation for such disclosures, proceeds to the literature on studies on the practices of the social and environmental disclosures around the world with special emphasis on India, and summarizes the literature on factors influencing the level of such disclosures and its impact.

(1) Studies on Theories of Social and Environmental Disclosures : There are various theories formulated by researchers trying to explore the evolution and the need and motivation of the companies to disclose their social and environmental performance. One among them is the stakeholder theory. Developed by Freeman and Reed (1983), this theory supports the view that a firm should be considered successful only when it manages the relationship with the stakeholders. According to Roberts (1992), the major objective of a firm is to balance the conflicting demands of the various stakeholders and the efforts given by firms. The strategy of the management should be developed towards supporting the group, which leads to corporate social responsibility. The emerging trend has been to disclose the performance of the firm in terms of its environmental contribution. Clarkson (1995) classified stakeholders as voluntary stakeholders who are undertaking activities of companies in terms of investment (in human and other capital) and take the risks, for example, employees, suppliers, etc. Involuntary stakeholders are affected by the activities of a large organization and assumedly undertake the risk of the operations of the business. According to Elijido-Ten (2007), the stakeholder theory explains the companies' decision for environmental disclosures. Yi, Davey, and Eggleton (2011) articulated that the stakeholder theory extends shareholders' point and includes several other stakeholders in a multiway relationship. Industry sensitivity and regulatory sanctions along with the level of ownership dispersion determine the companies' decision on environmental disclosures. Qu, Leung, and Cooper (2013) identified a social contact between firms and the stakeholders by testing legitimacy and stakeholder theory and found that the corporate voluntary disclosure would be used as a strategy for the companies to manage their stakeholder relationship.

An extension of the stakeholder theory is the legitimacy theory which is built on the premises that a business entity operates in a society and thus, there is an implicit social contract between the business entity and the society, and the firms try to conform to society's expectations. According to Weber (1968), a legitimate corporation should be perceived to carry out operations that are desirable and appropriate. The organizations should have social value systems in line with the corporate value systems. When there is a clash between the two, the legitimacy of the corporation is in jeopardy. Berry and Rondinelli (1998) contended that the stakeholders such as consumers, NGOs, local communities can influence the firms' behaviors through their expectations on corporate legitimacy. The firms react to the need and expectation of the society and reflect the actions through their social disclosure reporting. Campbell, Craven, and Shrives (2003) found that the advent of the legitimacy is the manifestation of the public desire to form an opinion whether an organization is right and proper, and hence, the organizations legitimize their efforts through the disclosure of their corporate social responsibility performance. According to Craig (2006), business firms strive to minimize the criticism from society.

(2) Studies on the Social and Environmental Disclosure Practices : Papers on voluntary disclosure focused on the emerging corporate sustainability report, which is based on the triple bottom line approach (TBL). Faisal, Tower, and Rusmin (2012) used the guidelines set by GRI as a benchmark and prepared a disclosure index check list, namely Sustainability Disclosure Index (SDI). This consisted of 79 items with three main categories - economic, environmental, and social. Using the same index, Chiong (2010) analyzed the items of disclosure under three categories, that is, economic performance information, environmental performance information, and social performance information. O'Dwyer (2003) used the *Corporate Environmental Report (CER)* developed by Centre for Social and Environmental Accounting Research (CSEAR) for measuring the level of CER disclosures by Ireland companies.

Few studies used specific disclosures on corporate social responsibility. Gelb and Stawser (2001) developed an index by using the guidelines given by the Council on Economic Priorities ; used the score as a proxy to estimate the social responsibility of the companies, and found that social relevance is one of the possible motivations for companies to disclose the CSR performance. Salomone and Galluccio (2001) took up a study in the oil and gas industry and investigated the disclosure reports of 156 companies in USA, Canada, and European region from 1993 to 1998 and found that the environmental disclosures were 100% in the USA - Canada region. It also found that the report had qualitative content and lesser quantitative content. Dawkins and Ngunjiri (2008) prepared an index of CSRR (Corporate Social Responsibility Report) using disclosure items of five categories such as community, diversity, environment, employee relations, and human rights.

Cormier, Aerts, Ledoux, and Magna (2009) employed disclosure group of 33 items with two categories namely human capital and social capital. Popa, Blidisel, and Bogdan (2009) investigated the extent of social responsibility reporting of Romanian companies and found that it was very limited and recommended that it should to be made mandatory. Berthelot, Colulmont, and Serret (2012) examined the impact of the corporate sustainability reports of the companies in Canada for their market value. By taking a sample of 146 relatively large companies, the study found that only around 20% of the companies published corporate sustainability reports and those companies commanded a higher share value in the market. Another study by Marshall, Brown, and Plumee (2008) analyzed the disclosure of economically sensitive industries of oil and gas, chemical, and electric utilities and two other industries for a 5-year period and found that the industry type had a bearing on the disclosure level and the firm valuation. Eljayash, James, and Kong (2012) also used the environmental sensitive industry for oil and gas in Arab countries and found that around 51% of the companies disclosed their environmental performance and the percentage of companies disclosing the environmental performance had been increasing substantially over the 3 year study period of 2008-2010. The study found that the details on education and training related information were disclosed more, while the information related to environmental sustainability was found to be less. Varghese (2012) conducted a study to examine the voluntary disclosure practices of Indian companies on three categories, financial, non-financial, and strategic, where non-financial disclosures included the information on the social and environmental disclosures.

(3) Studies on Determinants of the Level of Social and Environmental Disclosures : O'Dwyer (2003) investigated the environmental disclosure pattern of companies in Ireland. By dividing the environmental disclosure into different sub categories such as environmental practices, community development, and financial, the study examined the disclosure in a diverse sample and found that the disclosure levels on these aspects were higher in environmentally sensitive industries.

According to a study by Suttipun and Stanton (2012), which tested the relationship between environmental disclosures and the company characteristics in 75 sample companies in Thailand, 83% of the companies had disclosed environmental related information in the annual reports and larger companies disclosed more information, indicating a positive relationship between size and disclosure levels.

Another study in South Africa in the CSR disclosure by Dawkins and Ngurjiri (2008) on the top 100 listed companies in Johannesburg Stock Exchange and Fortune Global 100 found that the average CSR disclosure in South Africa was better primarily due to governmental and institutional regulations. The study, however, cautioned that there could be a difference between CSR disclosure and CSR performance. Meng, Zeng, and Tam (2013) explored the factors determining the level of social and environmental disclosures by Chinese companies in their social responsibility reporting during the study period from 2006-2008 and found that the disclosure level was high in public owned companies, indicating the relationship between ownership type and social and environmental disclosures.

(4) Studies on the Impact of Social and Environmental Disclosures : Karim and Mukhtaruddin (2013) studied the impact of social and environmental disclosures on the firm valuation of service companies in Indonesia during 2009 - 2011 and found that there was a positive relationship between the level of such disclosures and the firm value, which indicated that the market gave a higher valuation for companies which disclosed their CSR performance even when not mandated.

Ragothaman and David (2008) examined if the environmental disclosure had an effect on the market value of the top 100 companies in terms of air pollution. The study found that the companies which emitted higher pollutants were punished by the market with lower valuations. Faisal, Tower, and Rusmin (2012) explored the corporate sustainability reports of some of the largest 125 companies from 24 countries to find the factors affecting the CSR reporting. The study used Sustainability Disclosure Index as per GRI 2006 guidelines under three categories (such as economic, environmental, and social) and found that high profile industries, which are environmentally sensitive, provided more disclosures. The study also found that the emerging economies had higher disclosures on social and environmental performance than the developed economies.

There are several control variables used in the literature. Size measured by the total assets or market capitalization, etc. was found to have a positive influence on the firm's value. Bigger companies have more analysts, following which could result in higher volume and lead to better valuation in the market (Henning, Lewis, & Shaw, 2000). Risk, as measured by leverage, is the debt to equity ratio of a company, which could also have an effect on the firms' valuation, though the results were mixed on the positive and the negative effect. Rajan and Zingales (1995) found a negative relationship, while certain other studies found a positive effect. Profitability is also considered to have a positive effect on firm valuation as markets tend to reward profitable companies.

(5) Studies on Social and Environmental Disclosures of Indian Companies : Studies in India on sustainability disclosures had various dimensions such as environmental reporting, carbon credit, and business ethics.

Srinivasan (2012) explored corporate social responsibility (CSR) in alignment with ethics and summarized the state of training and research happening in South Asian countries on business ethics and sustainability reporting such that the future managers are sensitized towards doing something for the society. Few studies focused on the psychological aspect of CSR reporting. For example, Balasubramanian, Kimber, and Siemensma (2005) analyzed the attitude of the managers of Indian firms towards corporate social responsibility and found that the practices towards CSR practice are done more on a reactive basis, with caring mode, in line with the traditional culture of India and recommended that the initiatives should rather be at the strategic level.

Baxi and Ray (2009) investigated the corporate social responsibility reporting of Indian companies with respect to professionally run and family managed businesses. The study found that the professionally run companies focused more towards reporting the efforts, while the family run businesses showed mixed results in terms of the core emotional values of the family owning the business.

Li, Fetscherin, Alon, Lattemann, and Yeh (2010) conducted a multi-country research on CSR communication among companies in BRIC nations (Brazil, Russia, India, and China) and found that size, industry type, nature of the society, and governance structures influenced the extent of CSR disclosures among the companies. This study had put India as a rule based country, which was determined by multiple factors - political factors, legal factors, quality of accounting standards, free flow of information, and public trust. Sharma (2011) surveyed the CSR practices of 17 Indian companies and found that the companies conducted diverse activities which ranged from infrastructure development to donation camps. The study recommended holistic approach to CSR initiatives in association with government agencies to benefit larger sections of the society.

Bammi (2013) used greenhouse emission data of the BSE 100 companies as a proxy to environmental performance and analyzed the effect of the same in the market and financial performance of the companies. Shanmugam (2013) conducted a survey on the manufacturing companies in India to understand the practices of environmental sensitive activities and found that a large number of respondent companies had followed key initiatives such as rain water harvesting and reclaiming of waste; and companies with higher turnover and employee strength scored better on environmental performance of the companies. Kansal, Joshi, and Batra (2014) investigated the CSR disclosure trends of BSE 100 companies by using Corporate, Social, Environment, Energy, and Emissions (CSEEE) Index using weighted scores and found that size and corporate reputation significantly affected the social and environmental disclosures of the companies.

Mitra, Agarwal, and Ghosh (2015) conducted a research on the sustainability reporting practices of chemical companies in Gujarat and found that though most of the companies practised sustainability, the reporting did not keep pace with that due to complexity in understanding the structure. Carbon accounting, which is in line with environmental sustainability, was studied by Kamat and Kamat (2015) who analyzed the existence of carbon accounting practices in India. The study underlined the need for change in the accounting standards to regularize the practice. Sadri and Sharma (2015) presented a conceptual framework of corporate sustainability in India with the latest emphasis on liberalization, privatization, and globalization and advocated that the purpose of CSR disclosure should be to serve the society genuinely and not as PR gimmicks.

Research Gap

The social and environmental performance and its disclosure by companies is getting attention among the various stakeholders with regulations coming up with a framework. It also creates a need to understand the disclosure practices of Indian companies before and after the implementation of business responsibility reporting. Thus, there arises a need for a longitudinal study on the practices of Indian companies over the last few years, which can help to understand the effect of such regulations. It is also important to know how do the stock markets react to the social and environmental performance disclosure of companies in terms of valuation, and hence, the present study was undertaken.

Objectives of the Study

The study has the following objectives :

(1) To develop a Social and Environmental Disclosure Index (containing 10 items of economic, social, and environmental disclosures) to measure the social and environmental disclosure practices of Indian companies.

(2) To find the difference in the level of social and environmental disclosures before and after the implementation of business responsibility reporting.

(3) To study the impact of the level of social and environmental disclosures on the firm valuation before the implementation of BRR when such disclosures were voluntary.

Variables and Hypotheses

(1) Variables Used in the Study : The variables used in the study are presented below:

(i) Variables for Constructing the Social and Environmental Disclosure Index (SEDI) : The study has collated extant of literature on voluntary disclosure items. From these studies, the most repeated social and environmental information were extracted. We then removed the items which are mandatory in India (for example, sex ratio, CSR spending, etc.), certain variables were combined as one item, for example: diversity and inclusion. The broader framework of Global Reporting Initiative (GRI) was also referred to. Finally, the Social and Environmental Disclosure Index (SEDI), an unweighted index, is developed having 10 broad disclosure items on economic, social, and environmental categories. The items of the index are presented in the Table 1.

(ii) Variables Used for Studying the Impact of the Level of SED on Firm Value : The study analyzed the impact of the level of SED on the firm value and the proxy for firm value used in the study is Tobin Q. The ratio, estimated as the proportion of market value to the replacement value of assets, was widely used as a proxy for market valuation in studies such as the ones conducted by Sami and Zhou (2008) and Cormier et al. (2009). The higher Q ratio could have two interpretations - the management is capable of using the assets more productively than the competitor and the same is reflecting in the market, placing a higher value for the company. The other possible reason for a higher Q ratio is that the balance sheet of the company could not capture all the assets employed in the business, which could mean the presence of intangible assets in the business, which cannot be stated in the balance sheet (Bracker & Ramaya, 2011). One of the intangible aspects of a good social reporting is the reputation and trust the market places on companies with social responsibility and hence, using this ratio as a measure of valuation of companies is appropriate in the present context. The other variables used in the study are displayed in the Table 2.

(2) Hypotheses of the Study : The following hypotheses are tested in the study :

Table 1. Social and Environmental Disclosure Index

Category	Disclosure item	Details
Economic	Economic value generated	Contains detailed account of the wealth created by companies for all stakeholders.
	Indirect economic impacts	Details on the benefits such as economic generation, regional development etc.
	Procurement policies	Disclosures relating to vendor management policies.
Social	Local Community	Work carried out to engage, develop local community, and the nature /impact of dispute, if any.
	Occupation work and safety	Discussion on the policies of safety audit, reports of work related accidents, reasons, and mitigation plans.
	Training and Development	Training and development to technical and soft skills to employees and people outside the organization.
	Diversity and equal opportunities	Policies on the organization workforce and the details of the diversity in terms of gender, age group etc.
Environmental	Energy and water	Initiatives undertaken to protect the energy and water resources.
	Bio Diversity	Plan of action undertaken by companies to protect the biodiversity.
	Effluents and wastes	Actions taken by companies to manage effluents and dispose the wastes (such as investing in effluent treatment plants, desalination plants)

Note: Developed by us based on earlier literature, latest developments, and regulatory framework in India. Each of the items of disclosure is measured using content analysis by studying the annual reports.

Table 2. Variables Used for Studying the Impact of the Level of SED on Firm Value

Notation	Variable	Definition
TobinQ	Tobin's Q ratio	Market capitalization+ Book value of debts / Total assets
SEDS	Social and environmental disclosure score	Total score obtained by a company divided by total no. of disclosure items (10)
ROE	Return on Equity	Profit after tax/ Total equity
LnTA	Size	Natural logarithm of total assets
LEV	Leverage	Total Long Term Borrowings/ Equity

➯ **H_{01} :** There is no significant difference in the social and environmental disclosures of Indian companies between the pre and post-BRR periods.

➯ **H_{02} :** There is no significant relationship between social and environmental disclosures and firm valuation.

Research Methodology

(1) Nature and Sources of Data : The study has used secondary data. The secondary data includes financial variables and firm value indicators and various items of disclosures on social and environmental categories. The voluntary disclosures are taken from annual reports and corporate sustainability reports (wherever available) of the respective companies. Other variables were collected from Prowess, a database developed by Centre for Monitoring Indian Economy (CMIE).

(2) Period of the Study : The study covers five financial years, that is, from 2009 -10 to 2013 -14. This period is very significant in the financial reporting regime of India as mentioned earlier. The CSR reporting got a prominent place with SEBI's implementation of Business Responsibility Reporting under Clause 55 of the listing agreement for the top 100 companies in India from April 2012. Thus, the top 100 companies were required to submit the BRR report effective from the financial year 2013. The new Companies Act of 2013 was also enacted during this period, which made CSR reporting mandatory for the companies falling under the threshold.

(3) Sample for the Study : This study selected a sample consisting of non-financial companies listed in BSE 100 Index on the last date of the respective financial years which account for 396 observations in total (240 in pre-BRR and 156 post BRR). The companies in the sample are categorized based on : (a) industry type namely Diversified, Cement, Infrastructure, Automobile, Capital Goods, Chemicals, Service, Mining & Minerals, FMCG, and Pharma ; and (b) ownership, namely public sector and private sector companies.

To understand the difference in the social and environmental disclosure before and after the implementation of BRR, this study has taken only the companies forming a part of the BSE 100 Index in both pre BRR and post BRR periods. Thus, the sample size was reduced to 144 companies in the BSE 100 Index in pre and post BRR periods. To study the determinants of level of corporate voluntary disclosure, the balanced panel data were used. Thus, only those companies forming a part of the BSE 100 for all the years of the study, that is, the financial year 2010 to 2014 are considered.

(4) Research Methods : To understand the level of social and environmental disclosure among Indian companies, the study used frequency table and interms of industry (10 types as mentioned above) and ownership (government owned and private sector companies) descriptive statistics are used. To examine the difference in disclosure in pre and post BRR implementation, paired t - sample test was conducted.

To study the impact, panel data regression models with fixed and random effects are used. Also called as longitudinal and cross sectional data, panel data model observes a set of variables of an entity for more than one period. Panel data serves the benefit of considering the omitted variables bias caused by unobserved heterogeneity.

The fixed effects (FE) model was studied to understand the relationship between voluntary disclosure score and the predictor variables of the sample companies on the premises that company specific variables (such as industry type, ownership type, etc.) that are time invariant could influence the outcome variables, and such effects are to be controlled. The FE model also assumes that each company in the sample has such individual characteristics not correlated with the characteristics of other companies and thus, the error terms are not correlated.

Thus, the equation of the fixed effects model is :

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

α_i (i=1….n) is the unknown intercept for each entity (n entity-specific intercepts),
Y_{it} is the dependent variable (DV), where i = entity and t = time,
X_{it} represents one independent variable (IV),
β_1 is the coefficient for that IV,
u_{it} is the error term.

If the unobserved variables are time invariant, then changes in the disclosure score should be due to the influence of other variables (Stock & Watson, 2007). The random effects (RE) model, on the other hand, assumes that the error terms, which are not explained in the model, are caused by random factors and are uncorrelated with the predictor variables.

The model of random effect is :

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

where, ε_{it} denotes the within-company error and u_{it} refers to between-company error.MS -Excel, Stata version 12, and SPSS 20 are used to carry out the analysis.

➭ **Model Used for the Study :** A regression model is developed for this study to test the impact of SED on the firm value. It has the dependent variable as Tobin's Q ratio.

$$TOBINQ_{it} = \beta_0 + \beta_1 SEDS_{it} + \beta_2 LEV_{it} + \beta_3 LnTA_{it} + \beta_4 ROE_{it} + \varepsilon i_{it}$$

Results and Discussion

(1) Results on the Level of Social and Environmental Disclosure : The descriptive statistics for the level of social and environmental disclosure are given in the Table 3. The average score of social and environmental disclosure of the companies in the pre BRR period is 40%, while it increased to 60% in the post BRR period. In the pre BRR period, the maximum score is 80%, which increased to 100%. The average score across the study period is around 43%, indicating the average level of disclosure.

To further understand the level of SED in the context of pre and post implementation of BRR, a frequency table is presented in the Table 4. The results show that in the pre BRR period, when social and environmental disclosure was voluntary, 15 out of 240 companies have a disclosure score of more than 75%. The number rises to 108 out of 156 companies in the post BRR period, which indicates that making this disclosure mandatory could have improved the number of compliances. It further shows that prior to BRR, more than 76% of the observations have a score of 50% ; thus, until the implementation of BRR, most companies did not disclose their social and environmental performance.

(2) Results on the Differences in the Level of SED Before and After Implementation of Business Responsibility Reporting (BRR) : To examine if the scores of SED differed significantly before and after the implementation of BRR, a paired *t*- sample test was performed on the same companies in both pre BRR and post BRR regime.

The Table 5 presents the results of the paired *t*- test. With a significant *p* - value, H_{01} is rejected and hence, there is

Table 3. Descriptive Statistics of the Level of Social and Environmental Disclosure

	N	Mean	*SD*	Std. Error	Minimum	Maximum
Pre-BRR	240	40.25%	20.51%	1.32%	0.00%	80.00%
Post-BRR	156	59.92%	16.79%	1.35%	60.00%	100.00%
Total	396	43.25%	19.48%	0.98%	60.00%	100.00%

Notes: Calculated using SPSS 20

Table 4. Frequency Table for the Scores on SED Before and After the Implementation of BRR

Disclosure score	Pre- BRR regime No. of companies	Post BRR regime No. of companies
30%or less	104	10
31%-50%	79	18
51%-70%	42	28
71% and above	15	108
Total	240	156

Note: Calculated using Excel

Table 5. Results of the Paired *t* - Sample Test to Understand the SED Pre and Post BRR

	Mean	*SD*	Std. Error Mean	95% Confidence Interval of the Difference		*t*	*df*	Sig. (2-tailed)
pre - post	-32.29%	31.95%	2.66%	-37.55%		-27.03%	-12.13	1430.00

Note: calculated using SPSS 20

Table 6. Industry-wise Descriptive Statistics of the Scores of SED (%)

Industry type	1	2	3	4	5	6	7	8	9	10
Mean	50	47	62	44	48	38	45	45	47	43
Median	50	50	75	40	45	40	50	50	40	40
Std. Deviation	6.9	7.9	3.7	3.4	3.9	2.5	3.5	2.1	3.9	2.9
Minimum	0	0	0	10	10	10	0	0	0	0
Maximum	100	100	100	80	90	60	90	100	90	90
N	**21**	**17**	**70**	**30**	**22**	**35**	**48**	**87**	**25**	**38**

Note: Results calculated using SPSS 20

1-Diversified ; 2 - Cement; 3 - Infrastructure ; 4 - Automobile ; 5 - Capital Goods ; 6 -Chemicals ; 7- Services ; 8 - Mining & Minerals ; 9 - FMCG ; 10 - Pharmaceuticals

Table 7. Ownership - Wise Descriptive Statistics of Scores of SED

	Public	Private
Mean	45.9	42.6
Median	50	40
Std.Deviation	2.1	10
Minimum	10	0
Maximum	80	100
N	69	324

Note: calculated using SPSS20

a significant difference in the level of social and environmental disclosures of Indian companies before and after the implementation of business responsibility reporting.

The ensuing part analyses the scores in terms of industry type (10 different industries) and ownership type (public sector and private sector companies).

The Table 6 clearly shows that the social and environmental disclosures are highest in infrastructure industries. Most of the companies in the category use natural resources as a part of the inputs and it is thus imperative for them to disclose their social and environmental performance. Another industry which is generally associated with natural resources is mining and minerals, and here too, one can see that the average disclosure stands at the 7th position among other industries. One can also see a low score in the pharma industries.

The Table 7 shows higher average scores of SED for public sector companies in comparison to their private sector counterparts. A number of public sector units in the sample such as ONGC, Bharat Petroleum presented a detailed sustainability report as per GRI 4 of the Global Reporting Initiative Standards.

(3) Results on the Impact of the Level of SED on Firm Value : To examine the impact of the level of social and environmental disclosures, a panel data regression model is used where the dependent variable is Tobin Q, which is a proxy of firm value and the independent variable is the scores of social and environmental disclosures. As a preliminary analysis, the descriptive statistics and the correlation of the variables are estimated.

Table 8. Descriptive Statistics of the Variables of the Model

	Minimum	Maximum	Mean	Std. Deviation
Tobin Q	1	14	2.49	1.967
ROE	-159.00%	113.00%	18.19%	21.19%
SEDS	0.00%	100.00%	53.33%	29.61%
LEV	0	2	.45	.627
LNTA	9	15	12.18	1.161

Note: calculated using SPSS20

Table 9. Pearson Correlation Matrix

	LEV	*LnTA*	*ROE*	*SEDS*	*TobinQ*
LEV	1				
LnTA	.198**	1			
ROE	0.113	-0.025	1		
SEDS	0.095	**.189****	-0.101	1	
TobinQ	-0.018	**-.437****	0	0.067	1

Note: Results computed using SPSS 17.0

**. Correlation is significant at the 0.05 level (2-tailed). *. Correlation is significant at the 0.01 level (2-tailed)

(i) Descriptive Statistics of the Variables Used in the Model : The Table 8 indicates that the average disclosure of social and environmental performance before the implementation of BRR is 53% and the Tobin's Q ratio ranges from 1 to 14 and the average debt equity ratio is 0.45 times. The return on equity varies highly from a negative 159% to 113%, indicating wider variations in the profitability.

(ii) Correlation Analysis of the Variables Used in the Model : The correlation matrix was performed for the variables used in the model and are presented in the Table 9. The Table 9 shows significant correlation between the size variable, the scores of SED, and Tobin Q. The independent variables do not have a significant correlation and the multi-collinearity is also checked using variance inflation factor, whose value did not exceed 2 due to which all the variables are taken to the model.

The Table 10 shows the results of the panel data regression estimated using ordinary least squares, fixed effects (FE), and random effects (RE) models. The Hausman test, which is used to choose between FE and RE model, shows a significant p-value, and hence, the FE model is applicable. The FE model shows a positive and significant relationship between the scores of SED and firm valuation and hence, the null hypothesis, H_{02} is rejected, indicating a positive and significant relationship between firm valuation and the level of social and environmental disclosures.

This finding is similar to the results obtained by Plumlee, Brown, Hayes, and Marshall (2015) in the U.S. and Reverte (2016) in Spain. Both these studies found that good quality disclosures on social and environmental performances improved the cash flow and reduced cost of equity, thereby increasing the firm value. This result is also consistent with the findings of Huang, Xu, and Liu (2014) who found that the social and environmental disclosures among Chinese companies reduced information asymmetry and reduced the volatility of the share prices, thus increasing firm valuation. On the contrary, Verbeetan, Gamerschlag, and Moller (2016), who studied the relationship between social and environmental information and the firm valuation of German companies, did not find a strong association with environmental disclosures while the social information did have a positive effect

Table 10. Panel Data Regression Results Using Tobin's Q as the Dependent Variable

TobinQ	*OLS*	*FE*	*RE*
SEDS	1.087	0.0225	0.066
	(-0.007)	(0.089)*	(0.068)
LEV	-0.189	-0.108	-0.096
	(-0.208	(0.232)	-0.285
LNTA	-0.809	-0.373	-0.4845
	(0)	(0.00)***	(0)
ROA	5.806	4.048	5.522
	(0)	(0.00)***	(0)
R - squared	0.237	0.377	0.387
Hausman Test		19.26(0.0007)	
F test		16.87(0.00)	

Note: Results computed using Stata 12; *Significant at 1%, **Significant at 5%, ***Significant at 10%; OLS: Ordinary Least Square; FE: Fixed Effects; RE: Random Effects

on the firm value. The study also shows that bigger companies have a higher Tobin Q ratio, which is consistent with the results obtained by Marston and Polei (2004), Ghazali and Weetman (2006), Owusu - Ansah and Yeoh (2005), and Akhtaruddin (2005).

Conclusion

Indian companies are primarily family-owned and the business families are known to be philanthropists. In this context, this is one of the first studies to come up with the trend of social and environmental disclosures in the top Indian companies before and after the Business Responsibility Reporting regime. With an average disclosure score of 43%, the results indicate that mandating such disclosures has resulted in an increased level of disclosure. The results also show a positive significant relationship between SED and firm value, which indicates that markets pay a premium for socially responsible companies. This reinforces the stakeholder theory that companies strive more to keep all the stakeholders well-informed and continue to increase the focus on profit, planet, and people. It is also found that less than 40% of the sample companies prepared sustainability reports. There is a large scope for other companies to join the bandwagon of disclosing their performance on the triple bottom line. However, the mere disclosure of sustainability reports will not suffice. The companies have to practice the initiatives in true letter as good environmental performance can also lead to economic performance (in terms of increased revenue by creating goodwill, innovation, and reducing costs), thus providing greater economic benefits (other than the increased market performance) than ever before.

Research Implications, Limitations of the Study, and Scope for Further Research

(1) Implications of the Study : This research has important implications. The study found a positive and significant change in the level of social and environmental disclosures after the implementation of Business Responsibility Reporting. This would mean that the companies would voluntarily start to disclose more information once certain types of disclosures are made mandated. This gives a policy direction to the regulators. This study also found that the companies which have been working on the social and environmental issues and disclosing them voluntarily are reaping benefits in the market in terms of market valuation. A positive significant relationship between the level of social and environmental disclosures and firm value might give more incentives to the companies for being socially responsible.

(2) Limitations of the Study : As to the limitations of the study, the sample did not include financial companies as the estimation of TobinQ and other explanatory variables are different for these companies. The limitations relating to secondary data will also apply to this study.

(3) Scope for Further Research : The study can be expanded with wider sub-categories of social and environmental disclosures to understand the interplay between them. Among several industries, few of them are considered environmentally sensitive (such as mining) to see if the firm valuation differ among environmentally sensitive industries. Studies can also be focused on specific industries including the financial companies. A computerized content analysis can be deployed to measure the level of disclosures, which would enable observing larger number of samples.

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