

Corporate Characteristics and Sustainability Disclosure in Bangladesh: An Analytical Study Based on Global Reporting Initiative Guideline 4

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Purpose – The purpose of the research is to examine the level of compliance of sustainability disclosure as per GRI G4 framework and the influence of corporate characteristics on sustainability disclosure of listed companies in Bangladesh.

Design/methodology/approach – A sample of 175 listed companies drawn from the Dhaka Stock Exchange (DSE) listed companies using purposive sampling from different categories and data collected from the annual reports of 2018 through content analysis. The hypotheses were tested using ordinary least square regression (OLS).

Findings – Statistical results witness that the sustainability disclosure index (SDI) is inferior (12.19) with a high deviation (SD 9.61). This study also documents that industry membership, ISO certification, multi-nationality, and board size are positively associated with sustainability disclosure at a five per cent level. Still, the company category is negatively associated with sustainability disclosure at a six per cent level. This paper also found that sustainability disclosure is not likely to be significantly influenced by age, profitability, and leverage.

Research limitations/implications - The research used content analysis to measure quantity ignoring the quality of sustainability disclosure based on GRI G4 guidelines from the company's only one-year published annual report.

Practical implications - The research adds value to the sustainability disclosure literature and provides a message to the policy planners and practising authorities.

Originality/value – This is one of the pioneer studies using GRI G4 guidelines to measure the extent of sustainability disclosure and examine the influence of corporate characteristics on sustainability reporting in Bangladesh, considered a developing nation with an emerging economy.

Key Words: Sustainable development; sustainability disclosure; corporate characteristics; global reporting initiative; Bangladesh

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Introduction

The rising apprehension for worldwide ecological matters and the necessity for the conservation of ecology, sustainability reporting has become increasingly important, to both developed and developing economies (Girón, Kazemikhasragh, Cicchiello, & Panetti, 2021). Sustainability begins with considering the next generation during its use and is carried out by the current group of life (Sarkar, 2022). The concept of sustainability has three magnitudes stalks from the triple bottom line (TBL) idea, which John Elkington developed in 1994 (Bhatia & Tuli, 2017a). Sustainability reporting is an emerging issue in developed and developing countries (Bhatia & Tuli, 2017b). It has been particularly interesting to the stakeholders in developed countries but has started to be calculated in developing countries (Linh, Hung, & Binh, 2022). Businesses face more significant pressure to pursue sustainable, responsible initiatives that contribute to human well-being, tackle economic and social disparity and advocate environmental issues (Camilleri, 2017, cited in Fiandrino, Busso, & Vrontis, 2019). The global financial crisis, resource restraints, and ecological transformation would like to show society that the company is facing complex and uncertain circumstances, so corporate management needs to prepare long-term plans (Saputra, Djajadikerta, & Majidah, 2017). Though the quality of life has upgraded worldwide, the environment is susceptible, and millions of people are suffering from poverty and hunger in the twenty-first century (Wang, 2017). Industrialisation and expansion of business activities have some adverse effects on ecology, but it is the criterion for the economic growth of a country vis-à-vis the development of the standard of living (Sarkar, Ahmed, & Islam, 2020). Sustainable development has been globally familiar as development that meets the requirements of the present generation by considering the capability of upcoming generations to meet their own needs (Wang, 2017). An evolving acceptance amongst large corporations that exertions to enhance corporate sustainability are expected and worth to the business (Klettner, Clarke, & Boersma, 2014). Corporate sustainability is imperative for business today, and it is essential for organisational achievement in the long term, so countries have begun demanding that companies report their environmental, social, and governance performance (Nur, Akther, & Rahman, 2016). Corporate sustainability has grown for economic advance, ecological regulation-stewardship, and a thrust for communal justice and fairness (Christofi, Christofi, & Sisaye, 2012). The sustainability disclosure can reduce informational asymmetries between the firm and its stakeholders and be used as a communication tool to win their support (Chiu & Wang, 2015, cited in Ching & Gerab, 2017). Privately owned institutions have a higher quality of sustainability disclosure than government-owned ones (Chang, Amran, Iranmanesh, & Foroughi, 2019). However, government proprietorship is positively associated with the level of corporate sustainability disclosure (Kumar, Kumari, Poonia, & Kumar, 2021). Delivering information with a sustainability report demonstrates that the company's management has a high promise to operate the business in the concept of sustainability (Kurniawan, 2018). Legitimacy theory suggests that an organisation considers sustainable development in response to external institutional pressures, resulting in actions to improve the firm's image with stakeholders (Deegan, 2002; Hooghiemstra, 2000; Gumb, 2007; Adams, 2004, cited in Boiral, 2013).

Sustainability disclosure has become a progressively relevant issue in business and academia at the end of the 1990s (Hahn & Kuhnen, 2013). Knowledge and technological development can encourage sustainable economic growth and defuse the crisis threatening society, the environment, and the world economy (Wang, 2017). Companies are trying to increase transparency, augment brand value, reputation and legitimacy, enable benchmarking against competitors, signal competitiveness, encourage employees, and care about corporate information and control procedures through relating sustainability information (Herzig & Schaltegger, 2006, cited in Hahn & Kuhnen, 2013). Every company should conduct a wide-ranging materiality assessment, integrating stakeholder engagement in recognising and reporting unique sustainability impact (Puroila & Mäkelä, 2019). Despite these benefits, it seems that some companies are still unenthusiastic to adopt this practice, as it involves added responsibilities and challenges for companies (Bhatia & Tuli, 2017a). However, there is a positive association between sustainability disclosure and earnings informativeness (Swarnapali, 2019). For instance, ecologically polluting businesses disclose significantly higher sustainability information than non-polluting industries in India (Kumar et al., 2021). Corporate governance has an influence on sustainability reporting in Bangladesh (Tasnim & Khan, 2022). Unlike obligatory financial disclosures, sustainability disclosure is voluntary and measured as an act of transparency (de Villiers & Marques, 2016, cited in Semuel, Hatane, Fransisca, Tarigan, & Dautrey, 2019). A standardized method of sustainability reporting would help to reduce the limitations of voluntary initiatives and recover the overall voluntary reporting mechanisms (Coulmont, Berthelot, & Gagne, 2022). However, consciousness and empathy about sustainability reports in Indonesia are still deficient while the government has made sustainability reports obligatory (Wahyuningtyas, Susesti, & Murtadho, 2022). Global Reporting Initiative (GRI) is dedicated to developing and providing universal guidance for sustainability disclosure (Wachira, Berndt, & Romero, 2019; Islam, 2020). GRI guidelines are developed in connotation with specialists from all stakeholder groups (Christofi et al., 2012) so that the framework should use unless a more comprehensive and better framework developed due to it is the only framework that facilitates disclosure of the complete scenario of the sustainability performance of the firm (Laskar & Maji, 2016).

From the above standpoint, the matter is imperative to find out whether there is any relationship between the volume of sustainability disclosure based on GRI G4 and corporate characteristics of DSE listed companies in Bangladesh. The study is expected to enrich the literature on sustainability reporting and provide valuable guidelines to the policymakers and practising authorities to implement sustainable business so that the world will be comfortable for the future generation.

2. Review of Literature

The following literature on the relevant field from home and abroad was reviewed to find the research gap and formulate hypotheses. In the study, the independent variables have been taken with interpretation from previous studies by other researchers. Each of the company traits deliberated in turn and established hypotheses based on the relation with the extent of sustainability disclosure proposed below.

2.1. Company Categories

A few numbers of researchers used industry type as an explanatory variable in the corporate sector. Rao and Tilt (2016) found that industry type has some influence on CSR disclosure. Dissanayake, Tilt, and Qian (2019); Shamil, Shaikh, Ho, and Krishnan (2014) found no association between industry type and sustainability disclosure. Mudiyansele (2018) found that there is an insignificant relationship between industry type and CSR. Bhatia and Tuli (2017a); Girón et al. (2021) found a positive relationship between company nature and sustainability disclosure. Sarkar (2021) recognised that sustainability reporting is meaningfully linked to the company category.

Based on this background, company categories are expected to influence sustainability disclosure and the first research hypothesis formulated regarding company categories.

H1: There is a relationship between company categories and the extent of sustainability disclosure.

2.2. Industry Membership

Branco, Delgado, Gomes, and Eugenio (2014) and Sarkar (2021) found that industrial affiliation influences sustainability disclosure, but there is no sufficient study under the review, which considered industrial membership as a corporate characteristic. The survey attempt to assess the relationship between the industrial membership of the company and the extent of sustainability disclosure. Therefore, the second hypothesis was formulated regarding the industrial membership of the company.

H2: There is a relationship between the industry membership of the company and the extent of sustainability disclosure.

2.3. ISO Certification

Many theoretical and empirical research has examined the relationship between company recognition and the length of environmental exposure. Ezhilarasi and Kabra (2017); Sarkar, Ahmed and Islam (2020); Yusoff, Othman, and Yatim (2013) showed a significant influence of ecological certification on the environmental disclosure of companies. Sarkar (2021) identified that sustainability reporting is significantly related to the ISO certification of the company. Therefore, the third hypothesis was formulated regarding the ISO certification of the company.

H3: There is a significant relationship between the ISO certification of the company and the extent of sustainability disclosure.

2.4. Multi-nationality of Company

Bhatia and Tuli (2017a); Bae, Masud, and Kim (2018) found a positive relationship between the multi-nationality of the company and sustainability disclosure, whereas Wang (2017); Tasnim and Khan (2022) explore the foreign shareholders' holdings positively related to the disclosure of sustainability reporting. Anazonwu, Egbunike, and Gunardi (2018) found a significant favourable influence of board members' nationality on sustainability disclosure.

Sarkar (2021) identified that sustainability reporting is significantly related to the multi-nationality of the company. Majeed, Aziz, and Saleem (2015) found contrary relationships between foreign directors' representation in the board and CSR reporting.

Based on these different possibilities from empirical studies, a positive relationship between the multi-nationality of the company and the extent of sustainability disclosure is expected. Therefore, the fourth hypothesis was formulated regarding the multi-nationality of the company.

H4: There is a positive relationship between the multi-nationality of the company and the extent of sustainability disclosure.

2.5. Age of the Company

Several studies found a significant positive association between the age of the company and the extent of sustainability disclosure (Bhatia & Tuli, 2017a; Buallay & Al-Ajmi, 2019; Kumar et al., 2021), whereas Mudiyansele (2018) found that there is a significant negative relationship between the age of the company and sustainability disclosure. Some of the studies found no statistically significant relationship between the age of the company and sustainability disclosure (Dienes, Sassen & Fischer, 2016). Shamil et al. (2014) found that younger firms are likely to adopt sustainability reporting. Sarkar (2021) found that sustainability reporting is significantly related to company age.

Based on these contradictory suppositions from empirical studies, a positive or negative relationship between the age of the company and the extent of sustainability disclosure is expected. Therefore, the fifth hypothesis was formulated regarding the age of the company.

H5: There is a relationship between company age and the extent of sustainability disclosure.

2.6. Board Size

A few researchers used board size as an explanatory variable for differences in disclosure level in the corporate sector. Most of the studies (Bae et al., 2018; Giannarakis, 2015; Hu & Loh, 2018; Mahmood, Kouser, Ali, Ahmad, & Salman, 2018; Majeed et al., 2015; Mudiyansele, 2018; Olayinka, 2021; Shamil et al., 2014; Wang, 2017) showed a significant positive relationship between board size and CSR/ sustainability disclosure. However, some studies recognise no statistically significant relationship between board size and sustainability/ CSR disclosure (Rao & Tilt, 2016; Sarkar, 2022). Handajani, Subroto, Sutrisno, and Saraswati (2014) found that board size significantly affects corporate social disclosure. Akhtaruddin, Hossain, Hossain, and Yao (2009) showed a significant positive relationship between board size and voluntary disclosure. Tjahjadi, Soewarno, and Mustikaningtiyas (2021) found size has a positive consequence on economic, an adverse effect on communal and no effect on ecological sustainability performance. Tasnim and Khan (2022) found a negative impact of board size on sustainability reporting.

Based on these empirical studies, a positive relationship between the board size of the company and the extent of sustainability disclosure is expected. Therefore, the sixth hypothesis was formulated regarding the board size of the company.

H6: There is a positive association between board size and the extent of sustainability disclosure.

2.7. Profitability

Some of the studies show a significant positive relationship between sustainability disclosure and the profitability of the company (Branco et al., 2014; Dilling, 2010). On the other hand, some researchers recognise no statistically significant relationship between profitability and sustainability/ CSR disclosure (Dienes et al., 2016; Rao & Tilt, 2016; Shamil et al., 2014). Atan, Razali, Said, and Zainun (2016) found no association between environmental social and governance (ESG) disclosure level and the firm's financial performance. Similarly Wahyuningtyas, Susesti, and Murtadho (2022) found no substantial consequence of sustainability reporting on financial performance of companies. Tarmuji, Maelah, and Tarmuji (2016) found the influence of ESG practices on economic performance. Kee, Li, Sidik, Seng, and Suppiah (2020) observed ROE has a significant influence on ESG scores. Giannarakis (2014) found a positive relationship between profitability and CSR disclosure. Argento, Grossi, Persson, and Vingren (2019); Mudiyansele (2018) found a positive correlation between profitability and sustainability disclosure. Orazalin and Mahmood (2019) found that firm profitability substantially influence the extent, nature and quality of sustainability-reporting practices. However, Bhatia and Tuli (2017a); Kumar et al. (2021) found a significant negative relationship between sustainability disclosure and the company's profitability. Sarkar (2021) found that sustainability reporting is significantly related to the profitability of the company. Pham, Do, Doan, Nguyen, and Pham, (2021) observed a positive relationship between corporate sustainability and financial performance.

Based on this contradictory conclusion from empirical studies, a significant positive, significant negative, or no meaningful relationship between profitability and the extent of sustainability disclosure is expected. Therefore, the seventh hypothesis was formulated regarding the profitability of the company.

H7: There is a relationship between company profitability and the extent of sustainability disclosure.

2.8. Leverage

Shamil et al. (2014) identified a significant positive relationship of sustainability disclosure with leverage, whereas some studies identified a significant negative association between sustainability/ CSR disclosure and leverage (Bhatia & Tuli, 2017a; Branco et al., 2014; Giannarakis, 2014; Habbash, 2016; Kumar et al., 2021). Mudiyansele (2018); Hongming, Ahmed, Hussain, Rehman, Ullah, and Khan (2020) found that there is an insignificant relationship between leverage and CSR/ sustainability reporting. On the other hand, Sarkar (2021) identified that sustainability reporting is significantly related to the company's leverage.

Several studies have found different results, either positive, negative or insignificant, between leverage and sustainability/ CSR disclosure. Therefore the eighth hypothesis has developed regarding the leverage of the company:

H8: There is a relationship between leverage and the extent of the sustainability disclosure.

3. The Methodology of the Study

The empirical research is based on secondary data sources collected through content analysis of the company's annual report listed in DSE, Bangladesh, based on GRI G4 guidelines.

3.1. Population and Sample

There were 316 companies listed in 2018 with Dhaka Stock Exchange (DSE), Bangladesh. The sample of the study was selected based on Krejcie and Morgan's table (1970 cited in KENPRO). The table suggested 175 companies as a sample (175 samples for the population size of 320 in the case of the finite population). A purposive and judgmental basis sample is used to select the companies from 18 categories based on DSE classification (Panel C of Table-2).

3.2. Measurement Procedure

Earlier researchers used different measurement procedures to assess the level of sustainability disclosure practices. Akter, Akter, and Akhter (2018); Molla, Ibrahim, and Ishak (2019) used content analysis to collect sustainability disclosures information from the one-year annual report and websites. Bhatia and Tuli, (2017b); Bhatia and Tuli (2017a); Boiral (2013); Ong and Djajadikerta (2020); Kumar et al. (2021) used content analysis. Dissanayake et al. (2019) used word count content analysis. Ferri (2017) used content analysis of a seven-point Likert scale. Haladu and Salim (2017); Hossain (2017); Sarkar (2021) used content analysis applying disclosure checklist, a score of 1 was awarded if an item was reported; otherwise, a score of 0 was assigned.

Aktas, Kayalidere, and Kargın (2013); Bhatia and Tuli (2018); Ching, Gerab, and Toste (2013); Ching, Gerab, and Toste (2017); Laskar and Maji (2018) used a content analysis method on the indicators of GRI frameworks. Alam, Ahmed, and Hasan (2018) measured the level of sustainability reporting practices as per GRI G-3/3.1, reviewing annual reports and results shown as full disclosure, partial disclosure and no discourse. Akater and Dey (2017) used content analysis techniques to analyse sustainability disclosures in the annual report and website based on GRI G4 guidelines. Laskar (2018) used content analysis (binary– 0 and 1) to calculate the disclosure score of sustainability performance based on the GRI format. Argento et al. (2019); Hongming et al. (2020) used content analysis to develop a sustainability disclosure index. Atan et al. (2016) used content analysis of the annual report and stand-alone report to establish a modified index. Szekely and Brocke (2017) used semi-automated text-mining systems, Ismail and Latiff (2019) used Thomson Reuters ESG Scores of public listed companies from Thomson Reuters Eikon™ Datastream. In contrast, Nur et al. (2016) used the UN Global Compact framework to measure sustainability disclosure.

Content analysis is a commonly used means in social science research for mining information in a numeric arrangement from the published report (Laskar & Maji, 2016).

The study used a content examination of the annual report 2018 to develop a sustainability disclosure index (SDI) based on the GRI G4 guidelines. The annual reports are painstaking as a source of data because it is obligatory as required by legislation. Moreover, all listed companies recurrently produce it and are quite easy to compare (Tilt, 2001, cited in Akbas, 2014).

3.3. Information Items Included in the Index

Ninety-three items of GRI G4 guidelines are used to develop an appropriate compliance index on sustainability disclosure practices.

3.4. Scoring in the SDI

The dependent variable is indomitable as sustainability disclosure score (SDS) of each company as follows:

$$SDS = \sum_{i=1}^n d_i$$

Where,

$d_i = 1$ if the company disclosed the item d_i

$d_i = 0$ if the company does not disclose the item d_i

n = number of items

SDI of each company is computed by using the following formula:

$$SDI = \frac{\text{SDS of Individual Company}}{\text{Maximum Possible Obtainable Score}} \times 100$$

3.5. Data Analysis Techniques

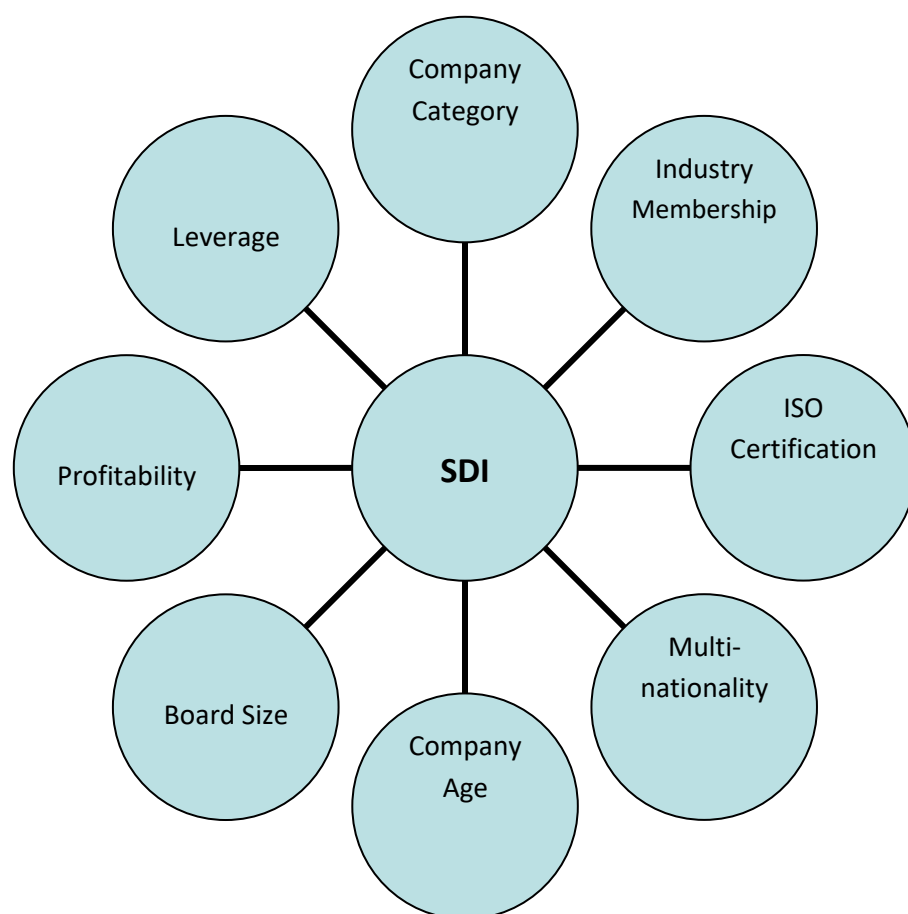
The research used descriptive statistics to measure the level of sustainability disclosure in the corporate sector in Bangladesh. In addition, the ordinary least square (OLS) regression model uses to investigate the relationships between corporate characteristics and the level of sustainability disclosure.

3.6. Dependent and Independent Variables

The SDI has been considered the dependent variable for each company studied, seeing collected data based on GRI G4. The explanatory variables cast off in the study have taken into account previous studies undertaken by other researchers.

The association of independent with dependent variables showed in the figure-1.

Figure 1: Independent and Dependent Variable



Source: Self Constructed.

Description of independent variables, their labels, expected signs, and relationships are presented in Table-1.

Table -1: Independent variables

Variable Labels	Variables	Description	Hypotheses	Expected Sign
CAT	Company Category	CAT has a relationship with the sustainability disclosure	H1	+/-
INMEM	Industry Membership	INMEM has a relationship with the sustainability disclosure	H2	+/-
ISO	ISO Certification	ISO has a relationship with the sustainability disclosure	H3	+/-
MULT	Multi-nationality	MULT has a positive relationship with the sustainability disclosure	H4	+
AGE	Company Age	AGE has a relationship with the extent of sustainability disclosure	H5	+/-

BSIZE	Board size	BSIZE has a positive relationship with the extent of sustainability disclosure	H6	+
PROF	Profitability (EPS)	PROF has a relationship with the levels of sustainability disclosure	H7	+/-
LEV	Leverage (debt to total assets)	LEV has a relationship with the levels of sustainability disclosure	H8	+/-

Eight corporate attributes considered are company categories (proxied by DSE classification based on business categories), industrial membership (proxied by either the company is member of an industrial association or not), ISO certification (proxied by whether the company ISO certified or not), multi-nationality (proxied by whether the company multi-national or not), age (proxied by year of establishment), board size (proxied by the number of directors in the board), the profitability of companies (proxied by EPS in 2018), and leverage (proxied by debt to assets ratio).

3.7. Multiple Regression Models

Multiple linear regression models developed for the study problem as-

$$SDI_i = \alpha + \beta_1 CAT_i + \beta_2 INMEM_i + \beta_3 ISO_i + \beta_4 MULT_i + \beta_5 AGE_i + \beta_6 BSIZE_i + \beta_7 PROF_i + \beta_8 LEV_i + \varepsilon_i$$

Where,

SDI= the extent of sustainability disclosure of company i in 2018 (sustainability disclosure index)

α = intercept

CAT: category of the company i (categorical variable, categorised by DSE based on business type)

INMEM: Industry membership of the company i (categorical variable, it takes 1 for the company is a member of an industry organisation, 0 for those who have no such membership, and 2 for the company those have no such option)

ISO: ISO certification of the company i (dummy variable, it takes 1 for ISO certified company, and 0 for those who have no ISO certificate)

MULT: multi-nationality of the company i (categorical variable, it takes 1 for multi-national and 0 for non-multi-national companies)

AGE: year of establishment of the company i as of 2018.

BSIZE: board size of the company i (number of members in the board of directors in the year 2018)

PROF: profitability of company i (EPS in the year 2018)

LEV: leverage ratio of the company i (ratio of the total debt to assets at the end of the year 2018)

ε = the error term

4. Results and Discussion

The section result of the study presented and discussed dividing three parts. In the first part, descriptive statistics of the independent and dependent variables are presented in the table and brief descriptions. The second part presents the Pearson correlation matrix to show the relationship among variables with a brief clarification. In the last part, an ordinary least square regression model was developed.

4.1. Descriptive Statistics

Table-2 presents descriptive statistics. The mean, standard deviation, minimum and maximum values for the numerical values shown in panel A, the frequencies and percentages for the dummy variables, ISO certification, and multi-nationality in panel B, industry membership and company category in panel C.

The mean value of the study's dependent variable, the extent of sustainability disclosure (SDI), is 12.19 with a high standard deviation of 9.61, minima 1.09 and maxima 43.48. The result designates a high variation in the volume of sustainability disclosures of sampled companies in their annual reports. Regarding the independent variables, Table-2 shows that the mean value of age is 26.94 with a high volume of standard deviation (14.82). In addition, the mean board size is 9.59, minima 4 and maxima 21, implying a high variation in the sample companies in terms of board size. Furthermore, the average profitability, measured by EPS in 2018, is 3.34 Taka, and companies in the sample have average leverage (debt to total assets ratio) of 0.41.

Panel B implies that most (59.4 per cent) of the sampled companies have no ISO certificate, and a few parts of the sample (17.1 per cent) companies are multi-national.

Panel C testimony that only about one-fifth of the company have industry membership and companies from different categories selected with a justifiable share of the population.

Table 2: Descriptive Statistics

Panel A – Dependent and Independent Variables

Variable	Obs.	Mean	SD	Min.	Max.
SDI	175	12.19	9.61	1.09	43.96
AGE	175	26.94	14.82	4	124
BSIZE	175	9.59	4.03	4	21
PROF	173	3.34	6.40	-15.47	47.47
LEV	175	0.41	1.53	0.00	20.13

Panel B – Dummy Variables

	ISO Certification		Multi-nationality	
	Frequency	Per cent	Frequency	Per cent
Yes	71	40.6	30	17.1
No	104	59.4	145	82.9
Total	175	100	175	100

Panel C – Categorical Variables

Status of Industry Membership	Mean	SD	Sample Size
Yes	21.15	17.151	34
No	9.72	13.843	119
Not Applicable	24.90	9.69	22
Total	10.51	14.335	175

Company Category	Frequency	Per cent
Bank	23	13.1
Financial Institutions	13	7.4
Insurance	15	8.6
Pharmaceuticals and Chemicals	15	8.6
Jute	2	1.1
Textile	30	17.1
Cement	5	2.9
Services and Real Estate	3	1.7
Food	9	5.1
Tannery	4	2.3
Engineering	19	10.9
Ceramic	4	2.3
Fuel and Power	14	8.0
Telecommunication	2	1.1
Travel and Leisure	3	1.7
IT Sector	3	1.7
Paper and Printing	2	1.1
Miscellaneous	9	5.1
Total	175	100.0

Source: Analysis of data.

4.2. Correlation Matrix

Table-3 presents the Pearson correlations matrix between the dependent and independent variables. I did this to check whether any multicollinearity exists among the variables included in the regression model. The result of the correlations analysis indicates that the highest correlation coefficient between independent variables is -0.381 for the company category and industry membership of the company. Thus, there is no unacceptable level of multicollinearity between the independent variables. According to Farrar and Glauber (1967) the correlation between independent variables should not be considered harmful until the correlation coefficients reach 0.8 or 0.9 (Akbas, 2014).

Table-3: Pearson Correlation Matrix

Variables	SDI	CAT	INMEM	ISO	MULT	AGE	BSIZE	PROF	LEV
SDI	1								
CAT	-.401	1							
INMEM	.586*	-.381**	1						
ISO	.194*	.076	.013	1					
MULT	.316*	-.160	.106	.348	1				
AGE	-.025	-.001	-.010	.154	.166	1			
BSIZE	.280*	-.375	.115	-.148	.103	-.054	1		
PROF	.103	-.057	-.059	.219	.261	.240	-.039	1	
LEV	.038	.007	.007	-.080	-.037	.007	.020	-.009	1

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

** highest correlation coefficient between independent variables

Source: Analysis of data.

4.3 Regression Results

In table-4 the estimated value for company category is -.228 and its t-value is -1.896 with p-value 0.060, the estimated value for industry membership is 6.788 and its t-value is 8.204 with p-value 0.000, the estimated value for ISO certification is 3.286 and its t-value is 2.714 with p-value 0.007, the estimated value for multi-nationality of company is 4.174 and its t-value is 2.588 with p-value 0.011, the estimated value for age of the company is -0.053 and its t-value is -1.397 with p-value 0.164, the estimated value for board size is 0.439 and its t-value is 2.952 with p-value 0.004, the estimated value for profitability is 0.110 and its t-value is 1.211 with p-value 0.228, the estimated value for leverage is 0.332 and its t-value is 0.945 with p-value 0.346. Statistical results indicate that the company category has an insignificant relationship at 5 per cent but a significant negative relationship with sustainability disclosure at a 6 per cent level. In contrast, industry membership, ISO certification, multi-nationality

and the board size have a positive and statistically significant relationship with sustainability disclosure at a 5 per cent level of significance. But the company's age, profitability, and leverage have no statistically significant relationship with sustainability disclosure. The nonexistence of multicollinearity in the data because the variance inflation factor (VIF) values for all eight independent variables are less than two. Result of the correlation matrix testimony that there is no variable with a higher correlation in the data set. The Durban Watson test statistics value is 1.109, in the normal range of 1.0 to 2.5. Field (2009) suggests that values under one or more than 3 are a definite cause for concern. So, the result indicates that there is no autocorrelation. The R^2 value for this model is 0.490, and the Adj R^2 value is 0.465, which implies that the predictor variables can explain about 49.0 per cent of total variation by R^2 and about 46.5 per cent of total variation by Adj R^2 .

Table-4: Result of OLS regression analysis testing the relationship between the extent of sustainability disclosure and company characteristics

Model	Regression	t	P-value	Collinearity Statistics	
	Coefficients B			Tolerance	VIF
Intercept	5.597	2.336	.021		
Company Category	-.228	-1.896	.060	.724	1.381
Industry Membership	6.788	8.204	.000	.840	1.190
ISO Certification	3.286	2.714	.007	.815	1.227
Multi-nationality	4.174	2.588	.011	.794	1.260
Age	-.053	-1.397	.164	.923	1.083
Board Size	.439	2.952	.004	.831	1.204
Profitability	.110	1.211	.228	.864	1.157
Leverage	.332	.945	.346	.992	1.008
R-Squire	.490				
Adjusted R-Squire	.465				
Durbin-Watson	1.109				
F-statistic	19.549				
p-value of F-statistic	.000				

a. Dependent Variable: SDI

Source: Regression coefficient of data.

5. Conclusion

The objective of this study was to investigate the relationship between the extent of sustainability disclosure (SDI) based on GRI G4 guidelines and corporate characteristics using secondary data collected through content analysis of the annual report 2018 of 175 companies listed in DSE, Bangladesh. The disclosure items of G4 were used as a measure of the extent of the sustainability disclosure index. In addition, eight corporate characteristics are considered as independent variables based on the previous literature. Descriptive statistics and inferential statistics were used to analyse the data through SPSS (Statistical Packages for Social Science) version 20.

Descriptive statistics indicate that the mean SDI is 12.19 with a high deviation (standard deviation 9.61 and range 42.39). The mean age of the selected companies is 26.94 from 4 to 124 years old in 2018. Selected companies include both profitable and losing companies. Only about one-third of the companies have ISO certificates, one-fifth of the companies have industry membership, and about one-sixth of the companies are multi-national.

The correlation matrix indicates no unacceptable level of multicollinearity in the independent variables because the highest correlation coefficient between independent variables is -0.381 between industry membership and company category.

The regression result indicates that four out of eight hypotheses supported at 5 per cent level of significance and another one significant at 6 per cent significance level. The empirical result means that the company category has an insignificant negative relationship with the extent of sustainability disclosure at 5 per cent significance level but significant at 6 per cent

level, contrary to the expectation (hypothesis 1). Thus, the result of sustainability disclosure and the company category is inconsistent with the previous studies if we considered 5 per cent level, but it is consistent at 6 per cent level. On the other hand, industry membership (hypothesis 2) provide supporting evidence that there is a significant positive relationship between industry membership and the extent of sustainability disclosure. Furthermore, there is a meaningful positive relationship between the ISO certification of the company and the extent of sustainability disclosure (hypothesis 3), multi-nationality of the company and the extent of sustainability disclosure (hypothesis 4), and between the board size of the company and the extent of sustainability disclosure (hypothesis 6).

This result of hypothesis 2, consistent with previous research, indicates that companies with industry membership disclosed more sustainability information in the annual report than those with no affiliation. In addition, the result of hypothesis 3 demonstrates that companies with ISO certification disclose more sustainability information than those without ISO certification. Finally, the result of hypothesis 4 shows that multi-national companies disclose more sustainability information than others.

The study results of hypothesis 6 indicate a positive relationship between board size and the degree of sustainability disclosure, which is consistent with some previous studies. The result implies that large board size companies disclosed greater sustainability information than those with small board size.

The result of the OLS regression analysis does not provide statistical support for the remaining three hypotheses relating to age (hypothesis 5), profitability (hypothesis 7) and leverage (hypothesis 8). The coefficient for age is negative and statistically insignificant at 5 per cent but significant at 16.4 per cent level of significance. The result has similarities with the findings of Dienes et al., 2016. On the other hand, the coefficient for profitability is positive and statistically insignificant at 5 per cent but significant at 22.8 per cent level of significance. Thus, the result has consistency with Dienes et al. (2016); Rao and Tilt (2016); Shamil et al. (2014) found no statistically significant relationship between profitability and sustainability/ CSR disclosure, and Atan et al. (2016) found no association between ESG disclosure level and the firm's financial performance. Similarly, the coefficient for leverage is positive and statistically insignificant at 5 per cent but significant at 34.6 per cent level of significance. The result has consistency only with Mudiyanse (2018), who tried to show the relationship between leverage and CSR.

This study is not free from limitations. Mentionable limitations are that the study's period covers only one year, only considered annual reports of companies as the source of data on sustainability disclosure, and think only the volume but not the quality of disclosure. This study used data from the annual report 2018 which was latest at the time when the study was conducted. Following this, two more annual report were published and analyse the most recent one would be great and should be considered in future studies. However, this study findings are still important and guide the future research. The model explained 46.5 per cent proportion of SDI by the 8 variables included in the model as independent variables. To explain the unexplained 53.5 per cent, I need to add other possible independent variables. However, I could not do it because of the lack of data.

Future research would consider the limitations and overcome the study's barriers using longitudinal data, quality of sustainability disclosure, and data from annual reports and website publications.

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