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Sustainability Reporting: Empirical Evidence from Listed Firms of Fuel and Power Sector of Bangladesh

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Abstract : *The aim of this study is to observe the extent of sustainability reporting practice and to investigate the influential factors in determining the sustainability reporting in the fuel and power industry of Bangladesh. This research study develops a self-structured sustainability reporting index (SRI) based on established guidelines and previous studies. Content analysis has been used to observe the practice of sustainability reporting and board composition, ownership structure and firm characteristics have been used as the proxies of determinants of sustainability reporting. The study found that the average mean of sustainability reporting measured by the index is only 20.14% which indicates a very poor quality of sustainability reporting. Among the three components of sustainability reporting, economics sustainability disclosure has the highest index value and environmental sustainability disclosure has the lowest index value. But the positive sign is that the disclosure level of sustainability reporting is gradually increasing over the years. The multiple regression result shows that sustainability reporting practice is more prevalent inbigger firms and older firms. This study also shows that there is no significant association of sustainability reporting with board composition and ownership structures which implies that corporate governance instruments are not playing their effective role in ensuring sustainability reporting. The results recommend that the regulatory authority should develop mandatory guidelines for sustainability reporting or enforce existing global guidelines like GRI to improve the practice of sustainability reporting. The study also suggests that efficient corporate governance mechanism may play a vital role in increasing the extent of sustainability reporting in Bangladesh.*

Keywords: *Sustainability Reporting, economic, environmental and social sustainable reporting, board composition, ownership structures, corporate governance, GRI guidelines.*

1. Introduction

Current business world is gradually recognizing the importance of operating businesses that will ensure economic growth without encumbering the environmental or the social resources. In order to maximize shareholders' wealth and survive in the long run, companies are trying to apply sustainability criteria in their respective corporate management system (Michael and Gross, 2004). As a result, the increasing awareness of the corporate world regarding sustainability reporting has drawn the attention of many researchers and academicians

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over the world. Recent development of many non-governmental organizations like Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC) etc. indicates the increasing importance that is been given on sustainability related matters. These organizations are continuously urging the corporate world to give more importance on environmental and the community performance compared to the economic performance and this is not limited to developed countries. Due to rapid globalization and increased regulation, the practice of sustainability reporting is becoming a global phenomenon. More and more organizations operating in the developing countries are either directly or indirectly pressurized or encouraged to disclose matters regarding sustainability related issues.

Bangladesh is a developing country with a large population which is continuously rising and this ever-growing population along with decent economic growth has boosted the need for energy like electricity and fuel. As a result, the fuel and power industry of Bangladesh plays an important role in satisfying the needs of consumers. However, the current scenario of this industry is not quite good because of mismanagement and corruption that has led to increased capital costs in the power plants.The activities of the companies of this sector have direct impact on society and more importantly on environment. Some recent projects undertaken by the government have been criticized due to their adverse impact on the environment. As a result, many international organizations have raised concern regarding this matter. But the practice of sustainability reporting is still a voluntary requirement for the companies.All these matters have acted like motivating factors in the process of choosing this particular industry for the study.

A good number of studies have been conducted in the contextof developed countries regarding the extent of sustainability reporting and its determinants. The number of studies conducted on the context of developing countries in this regard is also increasing. However, there exists only a few studies that focused on industry-based sustainability reporting in the developing countries. In Bangladesh, studies conducted by Masum et al. (2020), Masud et al. (2018), Akter and Dey (2017) and Hossain et al. (2006) focused on sustainability reporting of companies operating in different industries. On the other hand, most of the industry-specific studies focused on banking and non-banking financial institution industry (Alam et al., 2018; Hossain, 2017; Sobhani et al., 2012). Among these studies only a few investigated the determining factors of sustainability reporting. For this study, the listed companies in the fuel and power sector has been chosen. This empirical researchstudy tried to address the existing limitations of the previous studies. In order to have a more comprehensive understanding, this study has used multiple sources for creating the sustainability reporting index (SRI) and considered all the listed companies in the industry. Besides, this study tried to investigate the impact of some firm characteristics like leverage, firm size, firm age, profitability etc. on sustainability reporting in addition to corporate governance and ownership related factors.

The primary objective of this study is to examine the extent of sustainability reporting in the listed companies of fuel and power industry of Bangladesh and to analyze the determinants that

may have impact on it. The determinants have been sub-divided into three categories. The first category, board composition, include board size, the proportion of independent directors and the proportion of female directors. The second category, ownership structure include sponsor/ director ownership, institutional ownership, foreign ownership and government ownership. Finally, the third category, firm characteristics, include leverage, firm size, firm age and profitability. This study will focus each category separately and find out whether these factors have any impact on sustainability reporting in the said industry.

This study will contribute to the field of sustainability reporting in several ways. Firstly, this study will try to find out the extent of sustainability reporting in the listed companies of fuel and power industry of Bangladesh. Secondly, the study will examine the factors that may determine the disclosure of sustainability related information. Thirdly, the analysis and findings of the study will try to provide insights into the importance of effective corporate governance on improving the extent of sustainability reporting in the annual reports of firms in Bangladesh. Finally, as only a few studies on this area have been conducted in the context of Bangladesh, this study will fill up the void in the existing literature.

The rest of the paper is organized as follows: Section 2 discusses the theoretical framework based on which the study has been conducted. Section 3 reviews the findings of previous literatures and section 4 shows hypothesis development. Section 5 explains the samples used in the study, data sources and research methods used to investigate the determining factors of sustainability reporting. Section 6 explains the analysis the empirical results of the study. Finally, section 7 draws the conclusion of the study including the limitation of the study and area of future research.

2.0 Theoretical Framework

One of the most important theories that can be linked to sustainability reporting practice is the legitimacy theory.Legitimacy is one of the mediums of communicating an organization's image to the stakeholders (Neu et al., 1998). According to Brown and Deegan (1998), organizations continuously try to assure that they are operating within the norms and limits of the society. As a result, there exists a 'social contract' between the organization and the people that are influenced by the activities of the organization. Organizations try to maintain the 'social contract' so that they can make the people realize that they are worthy of support and enhance their survival in that process. Sustainability reports act as a 'social contract' where the organization can justify their existence in the society and receive legitimacy for using natural resources and human resources by taking into account the existing rules and regulations (Deegan andUnerman, 2011).As legitimacy is threatened when companies breach their 'social contracts', sustainability reporting can be used to mitigate these pressures (Comyns, 2016). Management believes that legitimacy not only increases opportunities to attract economic resources and reduce threats from external pressures, but also to ensure social and political support (Masud et al., 2018).

Another theory that can be linked to sustainability reporting practice is the agency theory. Agency theory implies that agents are assigned by principals in exchange of some fees for conducting some services on the behalf of the principals (Jensen andMeckling, 1976). This theory also says that agency costs may arise as the agents may disregard the interest of the principals and focus on obtaining their own interest. In order to minimize this agency cost, principals require disclosure of more information by the agents. According to Jizi et al. (2014), investors and financiers can more accurately assess an organization based on increased disclosures regarding sustainability matters and this will help the organization to attract more investors and receive financing at a lower cost. Moreover, sustainability reporting is considered as an opportunistic, transparent and credible mechanism to reduce information asymmetry between agents and owners (Masud et al., 2018). Existing agency conflicts regarding economic, environmental and social decision can be mitigated by sustainability reporting practices as well as utilizing stakeholder's advocacy by the management (Cespa and Cestone, 2007). Therefore, managers' incentive to engage in sustainability reporting would be larger when corporate governance is stronger.

3.0 Literature Review

3.1 Development of Sustainability Reporting Guidelines

The concept of sustainability reporting was first introduced in the 20th century. In the late 1980s, the UN's Brundtland Report defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"(Brundtland, 1987). In the same decade the practice of sustainability reporting was initiated by the chemical industry for its bad reputation in polluting the environment. Many frameworks have been introduced by different bodies over time regarding sustainability reporting around the world.

Perhaps the most popular organization that issues sustainability reporting guidelines is Global Reporting Initiative (GRI). Established in 1997, GRI is regarded as the pioneer of corporate sustainability reporting in the world. GRI issued its first set of guidelines in 2000 (G1). Later on, GRI introduced more guidelines like G2 (2002), G3 (2006), G3.1 (2011) and G4 (2013), each having more updated and enhanced features addressing the current issues regarding sustainable environment. The most recent framework is the GRI Guidelines that was introduced in 2016 and has been effective since July, 2018. The GRI Guidelines include 25 standards focusing mainly on the environmental, economic and social disclosures.

International Organization for Standardization (ISO) is a non-government and independent organization that has a membership of 164 national standards bodies. It collaborates experts through its members for sharing knowledge and developing market-relevant and unanimous standards that offer solution to global challenges. ISO 26000 is specially focused on how organizations can operate in a socially responsible manner. According to this standard,

organizations should disclose its performance on social responsibility to those who are affected. It also describes core matters like governance, environment, labor practices, human rights, consumer issues etc.

Another mentionable standard-setting body is Sustainability Accounting Standards Board (SASB). It issues guidelines regarding sustainability information for voluntary disclosures by different organizations. It aids the investors in fulfilling their needs by fostering the reporting of material information regarding environment, society and governance.

International Integrated Reporting Council (IIRC) is an internationalalliance of standard setters, regulators, accounting profession, investors, and NGOs. IIRC issued a framework regarding Integrated Reporting (IR) in 2014 that focused mainly on developing and transmitting information to the long-term investors. Integrated reports primarily aims at communicating how organizational strategies and performance lead to the generation of values in the short and long terms.

There are many other global bodies like Organization for Economic Co-operation and Development (OECD), GHGGreenhouse Gas Protocol (GHG Protocol),Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB) etc. that are relentlessly working on different aspects of sustainability reporting. However, the most common drawback of these bodies is that the practice of following the frameworks and guidelines is of voluntary nature. As a result, worldwide practice of sustainability reporting has not become quite popular yet.

3.2 Sustainability Reporting in Different Countries

Kumar and Prakash (2019) conducted a study on listed banks in India during 2015-16 and 2016-17 based on GRI G4 guidelines. The study found that the sample banks are moving very slow in adopting the guidelines. Although most of the banks did well in the social development indicators, most of these banks performed poorly in achieving a good score in environmental indicators. Besides, public sector banks disclosed more information compared to the private ones.

Peiris and Anise (2019) conducted a study regarding sustainability reporting on listed companies of hotel and travel industry during 2013-2017 based on GRI G4 guidelines. The study found that only 5 companies out of a sample size of 35 followed the GRI framework. However, 19 companies did not disclose anything regarding sustainability. The study also found that, the most common disclosure in the environmental area is ‘emission’ and in the social area is ‘labor practices and decent work’.

Bhatia and Tuli (2018) conducted a study on the 136 listed companies in US and UK. They performed content analysis on the annual reports of the sample firms based on the GRI G4 framework. They found that the extent of disclosure by the companies in both of these countries are almost similar. However, the mean disclosure is low in both US (39.1%) and UK (34.5%).

Nobanee and Ellili (2016) conducted a study on the listed banks in UAE during 2003-2013. However, the study focused only on energy disclosures and natural environment disclosures. The study found that the overall sustainability disclosure is only 2.59% on average where conventional banks tend to disclose more (3.01%) compared to Islamic banks (1.52%).

Dilling (2010) conducted a study on sustainability reporting of randomly selected 124 companies from 25 countries based on GRI G3 guidelines. The study found that countries located in Europe produce higher quality sustainability reports compared to countries located in other continents. Besides, companies working in energy sector and companies with high profit margins disclose more information on sustainability. However, companies having long term growth rate are less likely to produce sustainability reports.

Dong and Burritt (2010) conducted a study on 25 listed oil and gas companies in Australia. The study found that the extent of disclosure is really poor and most of the information regarding environmental aspects was positive and declarative. However, information regarding human resources was extensively disclosed by most of the companies.

3.3 Sustainability Reporting in Bangladesh

Masum et al. (2020) conducted a study on 40 listed companies of DSE where they used GRI guidelines to conduct the content analysis. Using a checklist consisting of 75 items, they found that the mean disclosure was only 11.13 for the year 2018. The highest number of items disclosed by a company was 26, whereas the lowest was only 1.

Raquiba and Ishak (2020) conducted a study on 13 listed companies from the energy sector of Bangladesh using the GRI guidelines. The study found that, out of 651 items, the average items disclosed by companies were only 54 which was very poor.

Alam et al. (2018) conducted a study on the non-banking financial institutions of Bangladesh. The content analysis of the annual reports was done based on GRI-3/3.1. The study found that only 35% of the sample follow GRI guidelines in their reports. Among the other 65%, some of the companies do not follow GRI guidelines and most of them do not prepare sustainability reports at all.

Akhter and Dey (2017) conducted a study of top 50 companies (based on market capitalization) listed in Dhaka Stock Exchange (DSE) in 2016. The study used a checklist consisting of 40 indicators extracted from the GRI G4 guidelines. The study found that 96% of the sample companies disclosed at least one item from the checklist. Most of the disclosures were done in the areas of labor (37%), economic (31%) and society (20%). However, disclosures in the areas like environment, human rights and product responsibility were very few.

Another study was conducted by Mahmud et al. (2017) that assessed the sustainability reporting practice of listed banks in DSE and CSE from 2011 to 2015. They found that the disclosure of

sustainability report is increasing over the years but at a very slow pace. Besides most of the disclosures were insufficient and did not follow any particular guideline like GRI.

Sobhani et al. (2012) conducted a study regarding sustainability reporting practices in the banking industry of Bangladesh. The study used 125 items for content analysis dividing them into three categories: economic, environmental and social. The study found that almost all the banks practiced sustainability reporting but there was absence of particular structure. Information regarding social issues was disclosed more compared to that of economic and environmental ones. Besides, sustainability information was disclosed more by Islamic banks compared to the conventional banks.

Khan et al. (2011) conducted a study on 12 commercial banks and conducted a content analysis based on GRI G3 guidelines. They found that among the five subcategories, the issues regarding society were disclosed more followed by decent works and labor practices. However, disclosures regarding product information and human rights were mostly absent.

Hossain et al. (2006) conducted a study on 107 non-financial listed companies of DSE for the year 2002-2003. A checklist consisting of 20 indicators was developed based on the prior studies. The study found that only 8.33% companies disclose information regarding social and environmental issues in their annual reports. Besides, most of the disclosures were of qualitative nature and the environmental issues were ignored by most of the sample companies.

From the above discussion and evidence of previous studies (Appendix 1), it is evident that there is scarcity of research of sustainability reporting and its determinants in the area of fuel and power sector of Bangladesh. Thus, this research study will examine the extent of sustainable disclosure practice and the most influential factors (including board structure, ownership structure and firm characteristics)in determining the sustainability reporting based on GRI guidelines and previous empirical research.

Hypothesis Development

4.1 Board Composition

Several studies were conducted in the past that examined the impact of different factors on sustainability reporting. Some studies analyzed the effect of board composition like board size, independent directors, female directors etc. on sustainability reporting. An organization's performance and reputation can be enhanced when there exists an efficient board. A larger board tend to have more experienced members who have the knowledge of dealing with sustainability reporting issues like environmental pollution, human rights, communication with stakeholders etc. (Masud et al., 2018; Katmon et al., 2017). Most of the prior studies found a positive association between board size and sustainability reporting (Raquiba and Ishak, 2020;Masud et al., 2018;Mahmood et al., 2018).However, previous studies also found that there exist miscommunication and lack of coordination in larger boards which may result in lower quality of disclosure (Kiliç et al. 2015; Amran et al. 2014).

The presence of independent directors in a board can ensure objectivity in decision making and transparency in disclosing information. Independent directors can also aid in reducing the legitimacy gap between the organization and society (Ntimet al., 2013; Freeman and Reed 1983). However, the true independence of the independent directors is needed to be considered in this regard. Previous studies (Nguyen and Nguyen, 2020; Raquiba and Ishak, 2020; and,Sharif and Rashid, 2014) found that higher percentage of independent directors in a board can improve the level of sustainability reporting in organizations.

Besides, the presence of female directors in a board can also influence the extent of sustainability reporting.According to the critical mass theory, the influence of the female directors' presence in the board is more noticeable if the number of female directors reaches a particular threshold (Kramer et al., 2007).Female directors tend to play more participatory roles in board meetings and are also supportive of disclosing more voluntary information about the organizations (Gul et al., 2011; Adams and Ferreira, 2009).Besides, women tend to possess the ability to bring new visions and insights, particularly in the field of human rights(Beji et al., 2020). As a result, there exists a positive relationship between the proportion of female directors in a board and sustainability reporting (Katmon et al., 2017; Lone et al., 2016;Ntimet al., 2013). In contrast, studies conducted by Amran et al. (2014) and Khan (2010) did not find any relationship between the proportion of female directors and sustainability reporting. Based on the above studies, the following hypotheses can be drawn:

Hypothesis (a): There is a positive association between board size and sustainability reporting.

Hypothesis (b): There is a positive association between the proportion of independent directors in a board and sustainability reporting.

Hypothesis (c): There is a positive association between the proportion of female directors in a board and sustainability reporting.

4.2 Ownership Structure

Some of the previous studies also examined the relationship between ownership structure and sustainability reporting. The influence of directors' ownership on voluntary disclosure is one of the most talked about aspects in the current world. Organizations where sponsors or directors have majority of the ownership, face less agency cost (Jensen andMeckling 1976). So, the disclosure of voluntary information is much lower. According to Faller et al. (2016), stakeholders of non-western world may not influence the decisions of directors likethe stakeholders of western world. Holding majority of the ownership gives the directors much power to take decisions in favor of their benefits. This ultimately results in a less amount of voluntary disclosure (Raquiba and Ishak, 2020;Masud et al., 2018; Haji, 2013). Some studies found a positive relationship between director ownership and sustainability reporting and explained that the directors try to disclose more information to reduce political costs (Shirodkar et al., 2016; Khan et al., 2013).

On the other hand, increased institutional ownership can result in enhanced disclosure of voluntary information. The power that institutional owners hold is much greater and for this, they can have a greater influence over the board. Institutional owners monitor the activities of the board and encourage them to disclose matters regarding environment and society to reduce political cost (Masud et al., 2018). Studies conducted by Raquiba and Ishak (2020), Masud et al. (2018) and Majeed et al. (2015) found a positive relationship between institutional ownership and sustainability reporting. However, some previous studies did not find any relationship between these two factors (Ganapathy and Kabra, 2017).

Foreign owners can also have impact on sustainability reporting. Disclosure of relevant information like sustainability can act as a medium of reducing information asymmetry among the foreign shareholders. According to resource dependency theory, foreign investors have more influence on nominating board members and can demand more information for ensuring transparency (Khan et al., 2013; Oh et al., 2011). Sometimes, foreign owners can compel companies to get engaged in projects related to social welfare and disclose the information. As a result, increased foreign ownership can lead to higher amount of disclosure regarding sustainability related information (Ganapathy and Kabra, 2017; Delgado-Márquez et al., 2016; Khan et al., 2013).

Finally, another ownership factor that can affect sustainability reporting is government ownership. Companies that have more government ownership tend to disclose more information as they need to follow more regulations compared to others. Requirement of maintaining strict regulations and setting a good example in the industry leads to a greater extent of sustainability related disclosure by these companies (Raquiba and Ishak, 2020; Khan and Hassan, 2019; Desfiandi, et al., 2019;Mudiyanselage, 2018). Based on the above studies, the following hypotheses can be drawn:

Hypothesis (d): There is a negative association between the percentage of director/sponsor ownership and sustainability reporting.
Hypothesis (e): There is a positive association between the percentage of institutional ownership and sustainability reporting.
Hypothesis (f): There is a positive association between the percentage of foreign ownership and sustainability reporting.
Hypothesis (g): There is a positive association between the percentage of government ownership and sustainability reporting.

4.3 Firm Characteristics

According to previous studies, organizations with high level of leverage need to disclose more information for increasing confidence of the creditors(Nguyen and Nguyen, 2020; Zhang, 2013; Barako, 2007). Besides, by disclosing more information, companies can maintain a good relationship with its creditors which will help these companies to receive further financial

assistance in future. However, sometimes companies with high leverage may disclose less information as the procedure of collecting and disclosing the sustainability related information can be expensive (Andrikopoulos and Kriklani, 2012).

Agency costs in large organizations is relatively higher as there exists higher information asymmetry between managers and large number of shareholders. Besides, larger companies have more responsibility as these companies are closely monitored by the public eye(Kouloukoui et al., 2019). As a result, these companies provide more voluntary information like sustainability related disclosures (Comyns, 2016;Hahn andKühnen, 2013). However, Magali et al. (2020) and Masud et al. (2018) did not find any relationship between these two.

Firm age can also have an impact on sustainability reporting. Older firms have more knowledge, experience and skills that that help them achieve reputation in the market. In order to maintain the reputation, these firms provide more voluntary disclosures (Agarwal andGort, 2002; Baker and Kennedy, 2002).

Finally, companies that have high profitability tend to disclose more information regarding sustainability reporting to ensure legitimacy and validate their participation in different welfare activities (Zainuddin, and Haron, 2009). Most of the previous studies found a positive relationship between profitability and sustainability reporting (Nguyen and Nguyen, 2020; Gomes andEugénio, 2014; Ehsan and Kaleem, 2012). Based on the above studies, the following hypotheses can be drawn:

Hypothesis (h): There is a positive association between leverage and sustainability reporting.
Hypothesis (i): There is a positive association between firm size and sustainability reporting.
Hypothesis (j): There is a positive association between firm age and sustainability reporting.
Hypothesis (k): There is a positive association between profitability and sustainability reporting.

5.0 Research Methodology

5.1 Sample Size and Data Collection

In order to conduct the research study, samples were taken from the companies in the fuel and power industry of Bangladesh that are listed in Dhaka Stock Exchange (DSE) for the years 2013 to 2019. Currently there are 22 listed companies in that sector. Among these companies, three companies were listed after 2018, resulting in a sample size of 19 companies for seven years. However, out of the 133 annual reports, 28 annual reports could not be collected due to either unavailability of the reports or enlistment of some companies after 2013. As a result, the final sample size was narrowed down to 105 firm-years. All the data were collected from secondary sources (annual reports published by the companies). Table 1 shows the names of sample companies:

Table 1: List of Sample Companies

S/L No.	Name of the Company	S/L No.	Name of the Company
1.	Baraka Power Limited	11.	Linde Bangladesh Limited
2.	Bangladesh Welding Electrodes Ltd.	12.	MJL Bangladesh Limited
3.	CVO Petrochemical Refinery Limited	13.	Meghna Petroleum Limited
4.	Dhaka Electric Supply Company Ltd.	14.	Padma Oil Co. Ltd.
5.	Jamuna Oil Company Limited	15.	Power Grid Company of Bangladesh Ltd.
6.	Eastern Lubricants Ltd.	16.	Shahjibazar Power Co. Ltd.
7.	GBB Power Ltd.	17.	Summit Power Limited
8.	Intraco Refueling Station Limited	18.	Titas Gas Transmission & Dist. Co. Ltd.
9.	Doreen Power Generations and Systems Limited	19.	United Power Generation &Distribution Company Ltd.
10.	Khulna Power Company Limited		

5.2 Research Model

A panel analysis was conducted to test the hypotheses. In order to analyzing the extent of sustainability reporting, a sustainability reporting index (SRI) **(Appendix 2)**was generated. The SRI consisted of 100 items and was divided into three categories: economic sustainability disclosure, environmental sustainability disclosure and socialsustainability disclosure. The first category, economic sustainability disclosure, consists of 12 items regarding the reporting of overall economic and governance related condition of the companies. The second category, environmental sustainability disclosure, consists of 39 items regarding the reporting of the impact of companies' activities on environment and any measures taken to protect the environment. Finally, the third category, social sustainability disclosure consists of 49 items regarding the reporting of the impact of companies' activities on society and contribution of these companies in social welfare. The SRI was prepared based on the selected items provided in GRI G4 Guidelines, Equator Principles, UNEP Finance Initiative etc. and also on some selected items included in the checklist of some previous studies (Nobanee and Ellili, 2016; Sobhani et al., 2012; Hossain et al., 2006).

A content analysis was performed after developing the sustainability reporting index (SRI). The unweighted method was used for conducting the analysis. If a company disclosed any information that matched one of the items in the sustainability reporting index (SRI), the item was scored as 1. However, if the item mentioned in the sustainability reporting index (SRI) was not disclosed by the company, it was scored 0. After scoring each individual item, the index value was calculated by using the ratio of total scored achieved by a company and the

maximum achievable score (in this case, it is 100). Previous studies conducted by Li, et al. (2007) and Muttakin, et al. (2015) also used the same method for conducting content analysis. The following formula has been used to calculate the sustainability reporting index (SRI):

$$SRI_j = \frac{\sum_{t=1}^{n} X_{ij}}{n_j}$$

Where n_j= number of items for jthfirm, X_{ij}= 1 if i^{th}item disclosed, 0 if i^{th}item not disclosed, so that $0 \leq SRI_j \leq 1$.

For analyzing the determinants of sustainability reporting, a multivariate regression analysis has been performed. The following equation has been used for the regression analysis:

$SRI_{it} = \alpha + ß_1$ Board Composition + $ß_2$ Ownership Structure + $ß_3$ Firm Characteristics+ ε.

Where SRI denotes the sustainability reporting index. Board composition includes three variables: board size, the proportion of independent directors in the board and the proportion of female directors in the board. Ownership structure includes four variables: the percentage of sponsor/director ownership, the percentage of institutional ownership, the percentage of foreign ownership and the percentage of government ownership. Finally, firm characteristics include four variables: leverage, firm size, firm age and return on assets (ROA). The extended equation is as follows:

$SRI_{it} = \alpha + ß_1$ LNBRDSZ + $ß_2$ INDDIR + $ß_3$ FMLDIR + $ß_4$ DIROWN + $ß_5$ INSOWN + $ß_6$ FOROWN+ $ß_7$ GOVTOWN + $ß_8$ LEV + $ß_9$ LNFSZ + $ß_{10}$ LNFAGE+ $ß_{11}$ ROA + ε…..(Model-01)

The definition and the expected relationships among the dependent and independent variables is given in Table 2:

Table 2: Definition of Variables

Variable Name	Symbol	Explanation	Expected Relation
Sustainability ReportingIndex (Dependent Variable)			
Sustainability Reporting Index	SRDI	Index value of sustainability reporting	
Board Composition			
Board Size	LNBRDSZ	Natural Logarithm of Board Size	+
Independent Directors	INDDIR	% of Independent Directors in a Board	+
Female Directors	FMLDIR	% of Female Directors in a Board	+
Ownership Structure			
Sponsor/Director Ownership	DIROWN	% of Directors' Ownership	-
Institutional Ownership	INSOWN	% of Institutional Ownership	+

Foreign Ownership	FOROWN	% of Foreign Ownership	+
Government Ownership	GOVTOWN	% of Government Ownership	+
Firm characteristics			
Leverage	LEV	Ratio of Book value of Total Debt to Total Assets	+
Firm Size	LNFSZ	Natural Logarithm of Book Value of Total Assets	+
Firm Age	LNFAGE	Natural Logarithm of Firm's Age since Inception	+
Return on Asset	ROA	Ratio of Net Profit Before Tax to Average Total Assets	+

6.0 Results and Discussion

6.1 Sustainability Reporting Index (SRI)

6.1.1 Overall Descriptive Statistics of SRI

Table 3 shows the overall descriptive statistics of sustainability reporting index (SRI). From the table, it is evident that the average disclosure level of sustainability reporting index is only 20.14% which indicates a very poor quality of sustainability reporting in the annual reports of listed fuel and power companies of Bangladesh. The minimum level of disclosure by a firm is only 6% and the maximum level of disclosure by a firm is 41%. This result is consistent with the findings of most of the previous studies that also found a very low level of disclosure of sustainability related information in the annual reports of companies operating in different industries of Bangladesh (Masum et al., 2020; Raquiba and Ishak, 2020; Alam et al., 2018; Akter et al., 2018).

Table 3: Overall Descriptive Statistics of Sustainability Reporting Index (SRI)

Variable Name	Symbol	Obs.	Mean	Min	Max	Std. Dev.
Sustainability Reporting Index	(SRI)	105	0.2014	0.06	0.41	0.0807

6.1.2 Year-wise Mean Value of Sustainability Reporting Index (SRI)

Figure 1 shows the year-wise mean value of sustainability reporting index (SRI). It is evident that, the disclosure level of sustainability reporting is gradually increasing in the fuel and power industry of Bangladesh. In 2013, the mean disclosure index was 17.58% only. But it gradually increased over the years and reached to a mean value of 23.50% in 2019. The year 2014 is showing a low mean index value compared to previous year because some of the annual reports of that particular year were unavailable. Although the growth rate is quite slow, it is a positive sign that the companies are disclosing more sustainability relatedinformation in their annual reports.

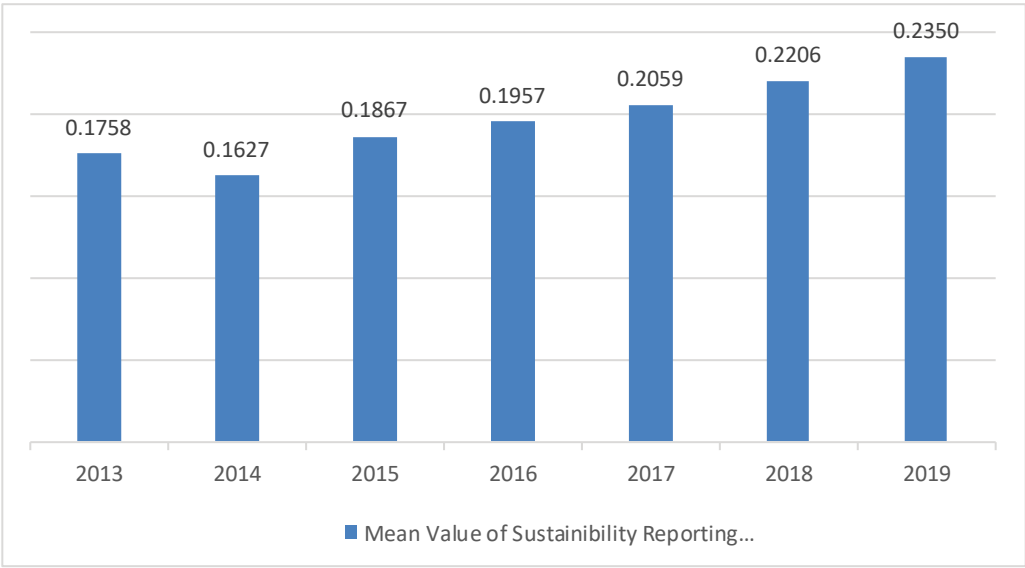

Figure 1: Year-wise Mean Value of Sustainability Reporting Index (SRI)

6.1.3 Component-wise Mean Value of Sustainability Reporting Index (SRI)

Figure 2 shows the component-wise mean value of sustainability reporting index (SRI). From the figure, it is evident that the economic sustainability related disclosure has the highest mean value of 58.01%. That means most of the sample firms extensively disclosed the information regarding their economic situation in the annual reports which is quite normal. A detailed analysis shows that companies disclosed information regarding economic value generation, defined benefit plan, capital structure, dividend policy etc. But most of the companies did not disclose information regarding risks and opportunities arising from climate change, gender-wise wage distribution, spending on local suppliers etc. which are also important parts of economic sustainability. On the other hand, the mean value of social sustainability related disclosure is only 21.11%. In this category, companies focused more on disclosures regarding social welfare programs and any awards received by these companies. But the companies rarely disclosed information regarding protecting human rights of their employees and any type of penalty regarding non-compliance with regulations. Finally, the fewest disclosures were made from the environmental sustainability reporting category. The mean value of only 6.37% shows the companies' indifference in disclosing information regarding environmental issues. Only a few companies disclosed information from this category and a few of these companies gave detailed explanation regarding their impact on environment and initiatives taken to protect the environment.

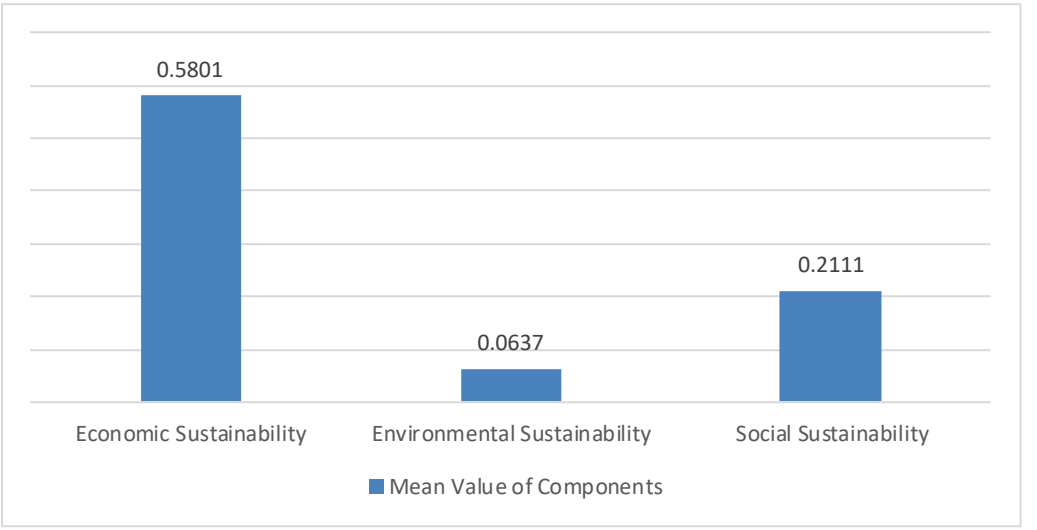

Figure 2: Component-wise Mean Value of Index

6.1.4 Disclosure Levels made by the Sample Bangladeshi companies in 2019

Table 4 shows the disclosure level of sample companies by expressing the number of items disclosed as a proportion of the sustainability reporting index consisting of 100 items in 2019. A total of six companies disclosed 21-30 items which is the highest number. Only one company disclosed items in the range of 41-50. The table shows that the overall distribution is skewing mostly towards lower level of sustainability reporting in the annual reports of the sample firms.

Table 4: Disclosure Levels made by the Sample Bangladeshi companies in 2019

Score Range	Companies with Disclosure	
Number of Items in Index	**No. of Companies**	**% in the Sample**
0-10	2	11.11
11-20	5	27.78
21-30	6	33.33
31-40	4	22.22
41-50	1	5.56
51-100	0	0
Total	18	100

6.1.5 Ranking of Companies based on Sustainability Reporting Index (SRI) in 2019

Table 5 shows an overall ranking of the sample firms based on number of disclosures made in 2019. It is evident that MJL Bangladesh Limited, a company operating in the fuel industry, holds the first place with a total disclosure of 41 items. It is a joint venture company between Jamuna Oil Company and EC Securities Limited. The second and third ranked companies are Summit Power Limited, Dhaka Electric Supply Company Limited and United Power Generation & Distribution Company Limited. All of these are from power industry of Bangladesh. The company with the lowest number of items disclosed (8 items) is Doreen Power Generations and Systems Limited.

Table 5: Ranking of Companies based on Disclosure Index in 2019

Name of the Company	Items Disclosed	Ranking
MJL Bangladesh Limited	41	1
Summit Power Limited	39	2
Dhaka Electric Supply Company Ltd.	34	3
United Power Generation & Distribution Company Ltd.	34	3
Khulna Power Company Limited	30	5
Titas Gas Transmission & Dist. Co. Ltd.	30	5
Meghna Petroleum Limited	26	7
Jamuna Oil Company Limited	25	8
Linde Bangladesh Limited	25	8
Power Grid Company of Bangladesh Ltd.	24	10
Shahjibazar Power Co. Ltd.	22	11
Baraka Power Limited	20	12
Padma Oil Co. Ltd.	18	13
CVO Petrochemical Refinery Limited	15	14
GBB Power Ltd.	12	15
Eastern Lubricants Ltd.	11	16
Intraco Refueling Station Limited	09	17
Doreen Power Generations and Systems Limited	08	18

6.2 Descriptive Statistics of Independent Variables

Table 6 shows the descriptive statistics of independent variables used to explore their impact on sustainability reporting index (SRI). As mentioned before, a total of 105 firm-years were observed. The average members consisting of a board is almost 10 with a minimum of 5 and a maximum of 19. The average percentage of independent directors in a board is 20.41%.

The average percentage of female directors in a board is 9.47% only, indicating a lack of gender diversification in the boards. The mean value of director/sponsor ownership is 37.09% whereas the mean value of institutional ownership is 15.41%. However, foreign ownership has a mean value of 0.61%, indicating the lack of foreign investment in this sector. As fuel and power is an important sector in Bangladesh, there is a presence of decent government ownership (mean value of 20.54%). Among the factors under firm characteristics, leverage has the mean value of 50.06% whereas return on assets (ROA) has a mean value of 9.64%. Average firm size is BDT 42645.37 million alongside the average firm age of almost 29 years.

Table 6: Descriptive Statistics of Independent Variables

Variable Name	Symbol	Obs.	Mean	Min	Max	Std. Dev.
Board Size	boardsize	105	9.50	5.00	19.00	3.50
Independent Directors(%)	inddir	105	20.41	0.00	33.33	8.08
Female Directors(%)	fmldir	105	9.47	0.00	66.67	15.89
Director/Sponsor Ownership (%)	dirown	105	37.09	0.00	100.00	32.82
Institutional Ownership (%)	insown	105	15.41	0.00	34.92	10.88
Foreign Ownership (%)	forown	105	0.61	0.00	5.00	1.16
Government Ownership (%)	govtown	105	20.54	0.00	75.00	29.68
Leverage(%)	lev	105	50.06	0.82	93.03	24.47
Firm Size(in millions)	firmsize	105	42645.37	148.47	245901.30	53676.75
Firm Age	firmage	105	28.38	3.00	61.00	18.89
ROA(%)	roa	105	9.64	-11.66	29.87	8.42

6.3 Bivariate Analysis:

Table 7 shows the Pearson correlation matrix of both the dependent variable (SRI) and the explanatory variables. It is evident that, board size, proportion of female directors, percentage of foreign ownership and firm size are significantly correlated with sustainability reporting index (SRI). The highest correlation among the variables can be found between sustainability reporting index and board size (0.64). According to Kaplan (1982), a correlation of more than 0.9 can be problematic, whereas according to Gujarati (2003), the value is 0.8. As the highest value in this correlation matrix is 0.64, it can be considered unproblematic.

Table 7: Correlation Matrix:

	SRI	lnbrdsz	inddir	fmldir	dirown	insown	forown	govtown	lev	lnfsz	lnfage	roa
SRI	1.00											
lnbrdsz	0.64**	1.00										
inddir	0.07	0.07	1.00									
fmldir	-0.27**	-0.27**	-0.08	1.00								
dirown	0.03	0.05	0.19	-0.07	1.00							
insown	-0.01	-0.03	-0.13	0.07	-0.21*	1.00						
forown	0.38**	0.23*	-0.17	-0.07	-0.08	0.31**	1.00					
govtown	0.14	0.01	-0.27**	-0.26**	-0.20*	0.44**	0.23*	1.00				
lev	-0.09	-0.11	-0.07	-0.40**	-0.08	0.32**	-0.07	0.52**	1.00			
lnfsz	0.54**	0.43**	-0.04	-0.24*	-0.05	0.17	0.38**	0.43**	0.48**	1.00		
lnfage	-0.02	-0.16	-0.18	-0.16	-0.18	0.74**	0.26**	0.60**	0.41**	0.15	1.00	
roa	0.20	0.19*	0.04	0.04	0.05	-0.17	-0.07	-0.29**	-0.57**	-0.21*	-0.08	1.00

*p<0.05; **p<0.01

Table 8 shows the variance inflation factor (VIF) analysis of the explanatory variables used in the equation. In order to test whether there exists any multicollinearity problem among the variables, variance inflation factor (VIF) test is performed. The study conducted by Neter, et al. (1989) found that if the mean value of VIF is more than 10, then it will indicate the existence of multicollinearity problem. On the other hand, according to Bowerman and O'Connell(1990), there will be an indication of bias if the value is less than 1. From the table, it is evident that, the mean VIF is 2.37. As a result, it shows that there is no multicollinearity or bias in the regression equation.

Table 8: Variance Inflation Factor (VIF)

Variable	Symbol	VIF	1/VIF
Board Size	lnbrdsz	2.02	0.50
Independent Directors(%)	inddir	1.35	0.74
Female Directors(%)	fmldir	1.92	0.52
Director/Sponsor Ownership (%)	dirown	1.1	0.91
Institutional Ownership (%)	insown	2.73	0.37
Foreign Ownership (%)	forown	1.81	0.55
Government Ownership (%)	govtown	2.33	0.43

Leverage	lev	3.06	0.33
Firm Size	lnfsz	2.84	0.35
Firm Age	lnfage	3.79	0.26
ROA	roa	1.98	0.51
Mean VIF		**2.37**	

6.4 Multivariate Analysis

Table 9 shows the results of regression analysis of the model used in this study. As mentioned before, a panel data analysis was conducted. Both fixed effects analysis and random effects analysis were performed. To decide between these two models, a Hausman test was performed. As the Hausman test rejected the null hypothesis, fixed effects model has been used. From the table, it is evident that the value of R-squared is 0.6048 which means 60.48% of the variations in the dependent variable sustainability reporting index (SRI) can be explained by the independent variables used in the study.

Among the independent variables used for testing the hypotheses, only two variables, firm size and firm age, have significant impact on sustainability reporting index (SRI). This result implies that larger firms tend to disclose more information regarding sustainability related matters. The activities of the large firms are more noticeable to the society. As a result, they need to legitimize their activities by disclosing more sustainability reporting information. Besides, being the market giants, these companies have the responsibility to set examples in the industry by practicing sustainability reporting more extensively. This is consistent with the findings of previous studies (Kouloukoui et al., 2019; Comyns, 2016;Hahn and Kühnen, 2013). Thus, hypothesis (i) can be accepted.

According to the regression results, firm age has also a positive and significant impact on sustainability reporting index (SRI). Mature firms tend to have more reputation in the market and they provide a greater extent of disclosures in order to maintain the reputation. Besides, old firms tend to perform better and have more predictable cash flows. As a result, they can invest more to operate sustainably and disclose these matters which also help them to maintain public relations. Previous studies conducted by Withisuphakorn, and Jiraporn (2015), Agarwal and Gort (2002), Baker and Kennedy (2002) also found the same relationship. So, hypothesis (j) can be accepted.

None of the variables under board composition (board size, the proportion of independent directors and the proportion of female directors) have significant impact on sustainability reporting index(SRI). The descriptive statistics shows that the average percentage of independent directors in the board is around 20.41%. But independent directors are not playing their effective monitoring role in sustainable reporting which implies that they are not concerned about the

sustainable reporting in the fuel and power companies of Bangladesh. Besides, underpayment to independent directors and appointment and reappointment of independent directors from personal networks has also resulted in this insignificant relationship. The number of female members in a board is also very low (9.47% on average). Besides, most of the female directors are either family members or familiar faces of controlling shareholders and are appointed by them. Lower participation of female directors and their lack of independence to raise voice in the board has led to this insignificant relationship.

This study also did not find any significant relationship between any determining factors under ownership structure and sustainable reporting index (SRI). This result indicates that most probably, sponsor/director, institutional investors, and foreign investors are not aware of the sustainability reporting in the fuel and power sector. In addition, May be, they are not interested to disclose voluntary sustainable information due to excess cost. Besides, among the variables under firm characteristics, leverage and profitability does not have any significant impact on sustainable reporting index (SRI).

Table 9: Results of Regression Output Using Panel Data Analysis

Variable	Symbol	Expectation	Coefficient(Fixed Effects)
Board Size	LNBRDSZ	+	0.0100
Independent Directors	INDDIR	+	0.0856
Female Directors	FMLDIR	+	0.0509
Director/Sponsor Ownership	DIROWN	-	(0.0006)
Institutional Ownership	INSOWN	+	0.0355
Foreign Ownership	FOROWN	+	-0.3823
Government Ownership	GOVTOWN	+	0.0885
Leverage	LEV	+	-0.0626
Firm Size	LNFSZ	+	0.0658**
Firm Age	LNFAGE	+	0.0583**
ROA	ROA	+	-0.0275
R-Squared			0.6048
Observation			105

*p <0.05; **p<0.01

6.5 Additional Analysis

Table 10 represents two additional analysis conducted in this study. The first additional analysis has been done using the lag model. Lag model analyzes whether the previous year's values of the explanatory variables have any impact on current year's value of the dependent variable sustainability reporting index (SRI).The value of R-squared is 0.5611 in this model. The results of lag model shows that along with the firm size, board size also has a significant and positive impact on SRI. It means organizations with larger boards tend to disclose more sustainability related information.Time dummy analysis has also been conducted to observe whether there is any influence of time factor. In this model, the value of R-squared is 0.6481. The results are similar to the results of lag model. Only board size and firm size has a significant and positive impact on SRI. Unlike the panel data analysis, no significant relationship between firm age and SRI can be found in this model.

Table 10: Results of Regression Output Using Lag Model and Time Dummy Model

Variable	Symbol	Expectation	Lag	Time Dummy
Board Size	LNBRDSZ	+	0.0585*	0.0709**
Independent Directors	INDDIR	+	0.0713	0.0288
Female Directors	FMLDIR	+	-0.0856	-0.0805
Director/Sponsor Ownership	DIROWN	-	-0.0001	0.0008
Institutional Ownership	INSOWN	+	-0.0600	0.0068
Foreign Ownership	FOROWN	+	1.1478	0.6504
Government Ownership	GOVTOWN	+	0.0031	0.0381
Leverage	LEV	+	-0.1078	-0.1025
Firm Size	LNFSZ	+	0.0213**	0.0197**
Firm Age	LNFAGE	+	0.0104	-0.0019
ROA	ROA	+	0.1185	0.1352
R-Squared			0.5611	0.6481
Observation			78	105

*p <0.05; **p<0.01

7.0 Conclusion

The purpose of this study was to observe the practice of sustainability reporting by the listed fuel and power companies of Bangladesh and to investigate its determining factors. The study found that the practice of sustainability reporting in the said industry is still very poor. The average disclosure rate of only 20.14% indicates that most of the companies are either reluctant

or indifferent to disclose sustainability related information. Among the three components of sustainability reporting, economics sustainability disclosure has the highest index value. On the other hand, environmental sustainability disclosure has the lowest index value. This is an alarming issue as Bangladesh is considered as one of the environmentally jeopardized countries in the world due to high level of pollution. Although social sustainability disclosure is in the second place on the basis of disclosure index, the level of disclosure is very low. However, the good thing is the extent of disclosure is increasing at a slow but constant rate each year.

In order to investigate the determinants of sustainability reporting, the study considered board composition, ownership structure and firm characteristics as the independent variables. The regression results of panel analysis (using fixed effects) found that only firm size and firm age have positive and significant association with sustainability reporting. The findings imply that larger firms and more mature firms make more disclosures regarding sustainability related information. As people observe the activities of larger firms more vigilantly, these firms try to provide more disclosure to maintain legitimacy. Mature firms try to maintain their reputation by providing higher number of disclosures. Besides, large and mature firms tend to have more expertise and financial capacity to operate their business in a sustainable way. These firms tend to invest more on projects related to environmental protection and social welfare and disclose these matters in the annual reports which also help them maintain public relations. The study did not find any significant relationship of sustainability reporting with corporate governance including board composition and ownership structures and other firm factors.

However, there are some limitations to this study. The first limitation is its small sample size. The study considered only the listed fuel and power companies of Bangladesh from2013 to 2019. A larger sample including more industries and years could have provided a more comprehensive result. The study considered annual reports as the main source of sustainability reporting by the companies. Company websites, magazines, independent sustainability reports were not considered. Finally, this study develops a self-structured sustainability reporting index but different sustainability reporting index may produce different results.

The study will pave way for new opportunities to conduct further research in this area. Studies can be conducted by considering all listed companies of Bangladesh. Besides, a comparative analysis can be done among different industries and countries to investigate the extent of sustainability reporting and its determinants. Variables like growth rate, industry type, media exposure, earnings per share etc. can be analyzed to find whether they have any impact on sustainability reporting. More items can be included in preparing the sustainability reporting index to observe the practice of sustainability reporting in Bangladesh.

The findings of this study will be helpful for the regulators, academicians and practitioners in this area. Based on the findings, some recommendations can be provided to improve the current situation. Firstly, sustainability reporting should be made mandatory for the organizations in

order to ensure legitimacy and accountability of the companies. The regulators should issue separate guidelines just like the corporate governance guidelines or can make the GRI G4 guidelines mandatory to follow. Secondly, the active participation of the independent directors and female directors in the board should be encouraged. The regulators should regularly monitor whether the independent directors are truly playing their independent role or not. By establishing effective corporate governance mechanism in every company, the practice of sustainability reporting can be improved. Institutional owners and foreign owners should also step up and demand for such information. Companies with government ownership should also be strictly monitored to ensure proper sustainable disclosure. Finally, the companies can be encouraged to issue separate sustainability reports in addition to annual reports for better disclosure and presentation. As the whole world is gradually adopting this new reporting system, Bangladeshi companies should also adapt to this change in order to survive in the global market.

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Appendix 01: Summary of the Findings of Previous Studies

Study	Sample	Methodology	Variables	Findings
Masum et al. (2020)	40 listed companies of DSE for the year 2018	- Content Analysis - Multiple Regression Analysis	Board characteristics, corporate characteristics	Foreign membership in board, firm age and EPS have significant and positive impact whereas firm size has significant and negative impact on sustainability reporting.
Raquiba& Ishak (2020)	13 listed companies of DSE from the energy sector for 2011-2017	- Content Analysis - Multiple Regression Analysis	Media visibility, ownership structure, corporate posture, characteristics of the board	Board size, board independence, board independence, number of subordinate committees have significant and positive impact whereas government, foreign, institutional, management ownership have significant and negative impact on sustainability reporting.

Nguyen & Nguyen (2020)	120 listed manufacturing companies of Vietnam for 2019	- Content Analysis - Multiple Regression Analysis	Firm size, independent directors, ownership structure, profitability, leverage	Firm size, independent directors, foreign ownership, profitability and leverage have significant and positive impact whereas state ownership has significant and negative impact on sustainability reporting.
Aman & Ismail (2017)	2060 listed companies of Bursa Malaysia for the year 2016	- Content Analysis - Multiple Regression Analysis	Ownership structure, industry type, firm size, women directors, profitability	Industry type and women directors in the board have significant and positive impact on sustainability reporting.
Kiliç&Kuzey (2017)	229 listed non-financial companies of BISt for 2013-2015	- Content Analysis - Multiple Regression Analysis	Corporate governance index, sustainability committee, industry, firm size, profitability, leverage	Corporate governance index, sustainability committee, industry, firm size have significant and positive impact whereas profitability has significant and negative impact on sustainability reporting.

Masud et al. (2014)	88 listed companies from Bangladesh, India and Pakistan for 2009-2016	- Content Analysis - Multiple Regression Analysis	Ownership structure, board characteristics	Foreign ownership, institutional ownership, board size and board independence has significant and positive impact whereas director ownership has negative impact on sustainability reporting.
Michelon & Parbonetti (2012)	114 DJSI & DJGI listed companies for the year 2003	- Content Analysis - Multiple Regression Analysis	Independent directors, board size, reputation, CEO duality, CSR committee, community influential members in board	CSR committee and community influential members in board have significant and positive impact on sustainability reporting.
Hossain et al. (2006)	107 listed non-financial companies of DSE for 2002-2003	- Content Analysis - Multiple Regression Analysis	Company size, profitability, subsidiaries of multinational companies, audit firm, industry type	Profit margin and industry type have significant and positive impact on sustainability reporting.

Akter et al. (2018)	15 listed banks of DSE for 2016	- Content Analysis	-	Most reported sectors are labor, product responsibility, energy, emission. Although most of the banks have used a separate section in annual report for sustainability reporting most of these are narrative disclosures.
Alam et al. (2018)	16 listed NBFIs of DSE for 2012-2016	- Content Analysis	-	GRI guidelines were followed by 35% of the sample firms fully and 28.75% partially. 36.25% firms did not follow the guidelines.
Akhter & Dey (2017)	Top 50 DSE-listed companies based on market capitalization for 2015-2016	- Content Analysis	-	Sustainability reporting practices in Bangladesh is still in infancy stage. Most of the companies emphasize to disclose about social issues more specifically their engagement with society and community development.

Islam & Chowdhury (2016)	30 listed banks of DSE for 2014	- Content Analysis	-	The banking sector is disclosing general information (66%) more than the specific aspects (17%). The overall disclosure level is at a poor level (36%) in terms of the sustainability approach of G4.
Khan et al. (2011)	12 listed banks of DSE for 2008-2009	- Content Analysis	-	Social indicators are disclosed extensively whereas indicators regarding human rights and product responsibility are unaddressed. Banks propensity to follow GRI FSS guidelines are very low compared to GRI G3 guidelines.

Appendix 02: Sustainability Reporting Index (SRI)

SL	Items	Source
	a. Economic Sustainability Disclosure	
1.	Direct economic value generated and distributed	GRI G4 (2013)
2.	Financial implications and other risks and opportunities for The organization's activities due to climate change	GRI G4 (2013)
3.	Coverage of the organization's defined benefit plan obligations	GRI G4 (2013)
4.	Financial assistance received from government	GRI G4 (2013)
5.	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	GRI G4 (2013)
6.	Proportion of senior management hired from the local community at significant locations of operation	GRI G4 (2013)
7.	Development and impact of infrastructure investments and services supported	GRI G4 (2013)
8.	Significant indirect economic impacts, including the extent of impacts	GRI G4 (2013)
9.	Proportion of spending on local suppliers at significant locations of operation	GRI G4 (2013)
10.	Capital structure	Sobhani et al. (2012)
11.	Dividend policy	Sobhani et al. (2012)
12.	Review of corporate financial performance	Sobhani et al. (2012)
	b. Environmental Sustainability Disclosure	
13.	Materials used by weight or volume	GRI G4 (2013)
14.	Percentage of materials used that are recycled input materials	GRI G4 (2013)
15.	Energy consumption within the organization	GRI G4 (2013)
16.	Energy consumption outside of the organization	GRI G4 (2013)
17.	Energy intensity	GRI G4 (2013)
18.	Reduction of energy consumption	GRI G4 (2013)
19.	Reductions in energy requirements of products and services	GRI G4 (2013)
20.	Awareness building concerning energy consumption	Sobhani et al. (2012)
21.	Energy saved due to conservationandefficiency improvements	Nobanee and Ellili (2016)

22.	Total water withdrawal by source	GRI G4 (2013)
23.	Water sources significantly affected by withdrawal of water	GRI G4 (2013)
24.	Percentage and total volume of water recycled and reused	GRI G4 (2013)
25.	Initiatives for water supply and sanitations	Sobhani et al. (2012)
26.	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	GRI G4 (2013)
27.	Habitats protected or restored	GRI G4 (2013)
28.	Direct greenhouse gas (GHG) emissions (scope 1)	GRI G4 (2013)
29.	Energy indirect greenhouse gas (GHG) emissions (scope 2)	GRI G4 (2013)
30.	Other indirect greenhouse gas (GHG) emissions (scope 3)	GRI G4 (2013)
31.	Reduction of greenhouse gas (GHG) emissions	GRI G4 (2013)
32.	Total water discharge by quality and destination	GRI G4 (2013)
33.	Total weight of waste by type and disposal method	GRI G4 (2013)
34.	Total number and volume of significant spills	GRI G4 (2013)
35.	Extent of impact mitigation of environmental impacts of products and services	GRI G4 (2013)
36.	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	GRI G4 (2013)
37.	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	GRI G4 (2013)
38.	Total environmental protection expenditures and investments by type	GRI G4 (2013)
39.	Significant actual and potential negative environmental impacts in the supply chain and actions taken	GRI G4 (2013)
40.	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	GRI G4 (2013)
41.	Past and current expenditure for pollution control equipment and facilities	Hossain et al. (2006)
42.	Past and current operating costs of pollution control equipment and facilities	Hossain et al. (2006)
43.	Future estimates of expenditures for pollution control equipment and facilities	Hossain et al. (2006)
44.	Future estimates of operating costs for pollution control equipment and facilities	Hossain et al. (2006)

45.	Financing for pollution control equipment or facilities	Hossain et al. (2006)
46.	Installation of effluent treatment plant	Hossain et al. (2006)
47.	Research on new methods of production to reduce environmental pollution	Hossain et al. (2006)
48.	Support for public or private action designed to protect the environment	Hossain et al. (2006)
49.	Conformity with the environmental rules, standard sand requirements	Nobanee and Ellili (2016)
50.	Dedication of one section on climate change or global warming	Nobanee and Ellili (2016)
51.	Corporate environmental policies	EPFI (2006)
c. Social Sustainability Disclosure		
52.	Total number and rates of new employee hires and employee turnover by age group, gender and region	GRI G4 (2013)
53.	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	GRI G4 (2013)
54.	Return to work and retention rates after parental leave, by gender	GRI G4 (2013)
55.	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	GRI G4 (2013)
56.	Health and safety topics covered in formal agreements with trade unions	GRI G4 (2013)
57.	Average hours of training per year per employee by gender, and by employee category	GRI G4 (2013)
58.	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	GRI G4 (2013)
59.	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	GRI G4 (2013)
60.	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	GRI G4 (2013)
61.	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	GRI G4 (2013)
62.	Emphasis on the morality of the employees	Sobhani et al. (2012)
63.	Reward and recognition for better performance	Sobhani et al. (2012)

64.	Educational Facilities	
65.	Information about support for day-care, maternity and paternity leave	Hossain et al. (2006)
66.	Providing information on the qualification of employees recruited	Hossain et al. (2006)
67.	Discussion on the company's relationship with trade unions and/or works	Hossain et al. (2006)
68.	Healthy and safe workplace for staff	EPFI (2006)
69.	Percentage of new suppliers that were screened using labor practices criteria	GRI G4 (2013)
70.	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	GRI G4 (2013)
71.	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	GRI G4 (2013)
72.	Total number of incidents of discrimination and corrective actions taken	GRI G4 (2013)
73.	Significant actual and potential negative human rights impacts in the supply chain and actions taken	GRI G4 (2013)
74.	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	GRI G4 (2013)
75.	Operations with significant actual and potential negative impacts on local communities	GRI G4 (2013)
76.	Communication and training on anti-corruption policies and procedures	GRI G4 (2013)
77.	Confirmed incidents of corruption and actions taken	GRI G4 (2013)
78.	Total value of political contributions by country and recipient/beneficiary	GRI G4 (2013)
79.	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	GRI G4 (2013)
80.	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	GRI G4 (2013)
81.	Results of surveys measuring customer satisfaction	GRI G4 (2013)
82.	Sale of banned or disputed products	GRI G4 (2013)
83.	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	GRI G4 (2013)

84.	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	GRI G4 (2013)
85.	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	GRI G4 (2013)
86.	Rural development programs	Sobhani et al. (2012)
87.	Helping disadvantaged people	Sobhani et al. (2012)
88.	Aiding victims of natural disasters	Sobhani et al. (2012)
89.	Sponsoring sports and cultural functions	Sobhani et al. (2012)
90.	Community activities within the corporate vicinities	Sobhani et al. (2012)
91.	Part-time job or internship placement	Sobhani et al. (2012)
92.	Creating job opportunities for unemployed youth	Sobhani et al. (2012)
93.	Corporate perceptions on CSR and sustainability conceptions	Sobhani et al. (2012)
94.	Pictorial presentations of CSR & sustainability activities	Sobhani et al. (2012)
95.	The amount/percentage figures of research and development expenditures and/or its benefits	Hossain et al. (2006)
96.	Information on the quality of the company's product as reflected in prizes/awards received	Hossain et al. (2006)
97.	Verifiable information that the quality of the firms' product has increased (e.g. ISO 9,000)	Hossain et al. (2006)
98.	Initiativestoprovideenergy-efficient orrenewableenergybasedproductsandservices,andreductionsin energy requirementsasaresultoftheseinitiatives	Nobanee and Ellili (2016)
99.	Social awareness programs	UNEP-FI (2006)
100.	Information related to new products	UNEP-FI (2006)