



Determinants of Sustainability Reporting Practices: Evidence from Listed Non-Financial Companies in Bangladesh

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Abstract

The aim of the study is to identify the determinants of sustainability reporting practices of listed non-financial companies in Bangladesh. The study further determines the factors that affect the economic performance, environmental performance, and social performance in congruence with latest Global Reporting Initiatives (GRI) standards. To explore the nature of sustainability reporting practices, the GRI based economic aspects, environmental aspects, social aspects, and a composite of these three aspects are considered in this study. Among the many possible factors, firm performance, firm size, firm age, leverage, and auditor type are chosen to determine their relationship with sustainability performance. The sample of the study consists of 310 firm-year observations from 14 different non-financial industries listed at Dhaka Stock Exchange for the years 2018-19 and 2019-20. Required data on sustainability performance is assembled from annual reports through manual content analysis and financial data is collected from audited financial statements. The empirical findings of the study reveal that firm performance, size of the firm and type of auditor are the determinants of GRI-based sustainability performance of listed non-financial companies in Bangladesh. The study contributes to the limited existing sustainability literature both theoretically and practically. The findings of the study have strong policy implications for the government, practitioners, and capital market regulators to concentrate on the determinants of sustainability performance, economic performance, environmental performance, and social performance in order to upgrade the sustainability reporting practices in an emerging economic context.

Keywords: Sustainability performance, Economic performance, Environmental performance, Social performance, Global Reporting Initiatives, Bangladesh.

1.0 Introduction

Due to environmental degradation, globalization and uneven wealth distribution, people's concern about the profit and growth of the organization is increasing day by day. Now, people are eager to know whether the organization's contribution is towards sustainable growth or the growth is a merely economic growth (Orazalin

& Mahmood, 2020). Hence, sustainability reporting has become a salient as well as pertinent issue all over the world. Sustainability reports provide an extensive variety of information about the economic aspect, environmental aspect and social aspect which are useful to policymakers, academics, practitioners and other stakeholders (Orazalin & Mahmood, 2018, 2020).

As Bangladesh is progressing towards 17 sustainable development goals and 169 targets, corporate sustainability reporting is gaining enormous popularity among different stakeholders with a view to measuring the extent of economic, social, environmental issues and estimating the contribution of companies in achieving sustainable economic growth (Akhter & Dey, 2017). Bangladesh has set various policies and plans to implement this global agenda since SDGs have to be achieved by 2030 and some goals of SDGs are directly involved with the environment and society (Kumar Das et al., 2021). Since sustainable goals achievement have become a compelling issue, at present companies are concentrating on voluntary disclosure of sustainability information which includes economic, environmental, and social information. To meet stakeholder's information need, to get competitive advantages and various other benefits, companies of developing economies have recently commenced disclosing sustainable information. Although most of the companies in developed countries publish standalone sustainability reports, this practice is not common in emerging economic context like Bangladesh. As the scope of sustainability reporting is widening and changing over the years, it is gradually attracting the attention of researchers (Kilic & Kuzey, 2017). Numerous studies focusing on the nature and extent of sustainability reporting practices have been conducted worldwide, some of these studies also examined the factors that affect sustainability reporting practices. In this regard, Orazalin & Mahmood (2020) in their empirical study on GRI-based sustainability reporting practices in Kazakhstan found that standalone reporting, reporting language, firm profitability, firm size and auditor type are the factors that have significant influence on the extent of sustainability reporting practices among publicly traded companies at the Kazakhstani Stock Exchange.

In Bangladesh, prior literature focused on sustainability

reporting practices of commercial banks for the year 2009 (Khan et al., 2011), sustainability reporting practices of top 50 listed companies based on 40 selected indicators from G4 guidelines for the year 2016 (Akhter & Dey, 2017), sustainability disclosure level of the banking sector of Bangladesh in congruence with GRI guidelines for the period 2011-2015 (Mahmud, Biswas & Islam, 2017), sustainability reporting practices by non-bank financial institutions of Bangladesh for the period 2012 to 2016 (Ahmed, Alam & Hasan, 2018), sustainability reporting practices of banking industry focusing on environmental aspects (Islam, 2020), the supply and demand side of sustainability assurance in Bangladesh for the year 2015 and sustainability reporting practice of 51 companies from 5 sectors based on 41 indicators from environmental and social dimensions of GRI 3.1 in 2017 (Kumar Das et al., 2021). . The incorporation of 72 indicators from 3 dimensions (economic, environmental, and social) of GRI standards, the inclusion of all non-financial industries listed at DSE, the adoption of latest GRI Standards which are effective on or after 1 July 2018, and the investigation of the determinants of sustainability reporting have made this study different from earlier studies. Hence, the aim of the study is-

1. to identify the determinants of sustainability reporting practices of sample non-financial companies listed at Dhaka Stock Exchange.
2. to examine separately the determinants of economic dimension, environmental dimension, and social dimension in accordance with GRI Standards.

This study contributes to the existing burgeoning sustainability literature in the emerging market context in several ways. It reveals the determinants of sustainability performance in Bangladesh based on several factors which are firm performance, firm size, firm age, leverage, and auditor type. This study further investigates the impacts of above mentioned determinants on the three dimensions (economic, environmental and social) of GRI-based sustainability reporting. The empirical findings will allow the policy makers, practitioners and regulators to reform national-level policies, strategic plans, and strong implementation of existing laws to improve sustainability reporting practices by focusing on the factors that affect sustainability performance. From

this empirical study shareholders, potential global investors and other stakeholders will be able to assess whether companies are achieving rapid economic growth or sustainable economic growth and this finding will help them make long term investments decisions in the context of emerging markets such as Bangladesh.

The remainder of this paper is organized as follows: Section 2 describes the theoretical framework, Section 3 discusses the hypothesis development, section 4 presents the research methodology, section 5 describes the empirical findings and section 6 provides the conclusion and limitations of the study.

2.0 Theoretical Framework

This study is based on several theories which are legitimacy theory, stakeholder theory, agency theory and signalling theory. In this section these 4 theories are described.

2.1 Legitimacy Theory

Since organisations work within the society, these organisations have to comply with the social norms and bounds in order to legitimate their operation within the society and society also has some explicit and implicit expectations from the organisations (Meyer & Rowan, 1977). In order to meet the expectation of society, organizations frequently publish voluntary disclosures as failure to meet public expectations may hinder business operation. Orazalin & Mahmood (2020) relate legitimacy theory with sustainability reporting practices and note that organisations use sustainability reports as a tool to legitimate business operations. In this regard Buallay & Al-Ajmi (2019) based on a cross-sectional and time series analysis of 59 banks from 2013 to 2017. A multivariate model is used to investigate the impact of selected audit committee attributes (financial expertise, size, members' independence and meeting frequency state that disclosure of sustainability information in corporate annual reports create positive impact about the firm and ensure that the firm is operating within the bound and norms of society.

2.2 Stakeholder Theory

Buallay & Al-Ajmi (2019) based on a cross-sectional and time series analysis of 59 banks from 2013 to 2017. A multivariate model is used to investigate the impact of selected audit committee attributes

(financial expertise, size, members' independence and meeting frequency in their empirical study related stakeholder theory with sustainability reporting practices and state that firms prepare and publish sustainability reports regularly with a view to notifying their stakeholders about firm's activities regarding economic, environmental, and social dimension of sustainability reporting. Gray, Kouhy & Lavers (1995) argued that both legitimacy theory and stakeholder theory are mutually enriching theories, and these theories lead to disclosing more information to reduce information asymmetry. Buallay & Al-Ajmi (2019) based on a cross-sectional and time series analysis of 59 banks from 2013 to 2017. A multivariate model is used to investigate the impact of selected audit committee attributes (financial expertise, size, members' independence and meeting frequency debated that since the aforesaid 2 theories have been used widely as a basis of CSR disclosure (Gray et al., 1995), therefore stakeholder theory is also relevant to study on sustainability disclosure practices.

2.3 Agency Theory

According to Fama & Jensen (1983) and Jensen & Meckling (1976), managers should reveal necessary and relevant information to owners and other stakeholders to mitigate agency conflicts. Miller & Le Breton-Miller (2006) note that as managers have superior information about the entity, they can expropriate business resources and hence, free-rider problems arise. Information dissemination about economic performance, environmental performance and social performance may reduce the possibility of managerial expropriations (Kuzey & Uyar, 2017). Ruhnke & Gabriel (2013) in their empirical study linked agency theory with sustainability reporting. Thus, organizations can reduce information asymmetry, agency costs and free-rider problems by preparing and publishing sustainability reports in congruence with GRI standards (Kilic & Kuzey, 2017; Orazalin & Mahmood, 2018, 2020).

2.4 Signalling Theory

According to signaling theory, organisations disclose sustainability reports in order to create positive impression on community and to highlight firm's voluntary activities in the market (Kuzey & Uyar, 2017; Orazalin & Mahmood, 2018, 2020). Ruhnke & Gabriel (2013) argue that sustainability reports disseminated in line with GRI guidelines provide

signals to the stakeholders on the nature and extent of firm's sustainable development and increase corporate reputation. Orazalin & Mahmood (2018) relate signaling theory with sustainability reports and found sustainability reports as signaling device to stakeholders (Orazalin & Mahmood, 2020).

3.0 Hypothesis Development

In this section, all the hypotheses related to sustainability reporting practices are discussed with reference to prior studies.

3.1 Firm Performance and sustainability reporting practices

Profitable organization voluntarily publish sustainable information to justify business operation within the society. According to signaling theory, organisations disclose sustainability reports in order to create superior notion on community and to highlight firm's voluntary activities in the market (Kuzey & Uyar, 2017; Orazalin & Mahmood, 2018, 2020). Orazalin & Mahmood (2020) in their empirical study on GRI-based sustainability reporting practices in Kazakhstan found a positive and significant relationship between profitability and sustainability reporting including the 3 dimensions of sustainability reporting which are economic, environmental, and social dimensions. However, Orazalin & Mahmood (2018) found insignificant association between firm performance and sustainability reporting practices of largest oil and gas companies in Russia. Based on signalling theory and legitimacy theory several prior studies reported positive relationship between firm performance and sustainability (Kuzey & Uyar, 2017; Liu & Anbumozhi, 2009; Orazalin & Mahmood, 2020; Ruhnke & Gabriel, 2013). Thus, the following hypothesis is formulated depending on the findings of earlier studies:

H1: *Ceteris paribus*, there is a positive relationship between firm performance and the sustainability reporting practices of listed non-financial companies in Bangladesh.

3.2 Size of Firm and sustainability reporting practices

Kuzey & Uyar (2017) in their empirical study on 297 Turkish companies found that size of the firm significantly affects the sustainability reporting practices of Turkish companies. Similarly, Orazalin & Mahmood (2020) reported a positive correlation between size of the firm and sustainability performance in

Kazakhstan. Liu & Anbumozhi (2009) also found a positive relationship. Larger companies disseminate more sustainability information in comparison to smaller companies with a view to reducing agency costs and information asymmetry (Kuzey & Uyar, 2017). On the basis of legitimacy theory, it is expected that larger companies will reveal more information on sustainability to legitimate their operation and to meet the information need of stakeholders (Kuzey & Uyar, 2017; Liu & Anbumozhi, 2009; Orazalin & Mahmood, 2018, 2020). Therefore, the study tests the following hypothesis:

H2: *Ceteris paribus*, there is a positive association between size of the firm and the sustainability reporting practices of listed non-financial companies in Bangladesh.

3.3 Age of Firm and sustainability reporting practices

Since older companies are more apparent to stakeholders and these companies have greater experience about voluntary reporting, age of the firm may be an important determinant of sustainability reporting practices (Orazalin & Mahmood, 2020). In this regard, Orazalin & Mahmood (2018) in their empirical study reported a significant and positive relation between firm age and sustainability reporting practices of companies in the Russian oil and gas industry. However, Orazalin & Mahmood (2020) found no impact of age on sustainability reporting practices of Kazakhstani public companies and reported a negative relationship between age and environmental dimension of sustainability reporting. Similarly, Liu & Anbumozhi (2009) also found a negative association. From the legitimacy perspective, it is expected that the sustainability performance of older companies will be better than others. Based on this legitimacy theory and the findings of prior studies, the following hypothesis is formulated:

H3: *Ceteris paribus*, there is a positive relationship between age of the firm and the sustainability reporting practices of listed non-financial companies in Bangladesh.

3.4 Leverage and sustainability reporting practices

Based on agency theory, levered firms should reveal necessary and relevant information voluntarily to owners and other stakeholders to reduce cost of capital, agency conflicts, and information asymmetry (Jensen & Meckling, 1976). Orazalin & Mahmood

(2020) in their empirical study reported a negative association between leverage and sustainability reporting practices. The relationship between leverage and sustainability reporting practices has been found to be different. Orazalin & Mahmood (2018) found no impact of leverage on sustainability reporting practices of companies in the Russian oil and gas industry. Based on the theoretical foundation and prior literature, this study proposes the following hypothesis:

H4 : Ceteris paribus, there is a positive relationship between leverage and the sustainability reporting practices of listed non-financial companies in Bangladesh.

3.5 Type of auditor and sustainability reporting practices

With a view to mitigating information asymmetry and ensuring greater transparency, it is expected that companies audited by Big 4 firms will disclose more economic, environmental and social information (Orazalin & Mahmood, 2020). In this respect, Orazalin & Mahmood (2018) in their empirical study reported a positive relationship between type of auditor and sustainability reporting practices of companies in the Russian oil and gas industry. Similarly, Orazalin & Mahmood (2020) found that in Kazakhstan companies audited by Big 4 audit firm disclose more information regarding sustainability performance and economic performance. Thus, based on agency theory and findings of prior studies, the following hypothesis is formulated:

H5: Ceteris paribus, there is a positive relationship between type of auditor and the sustainability reporting practices of listed non-financial companies in Bangladesh.

4.0 Research Methodology

4.1 Sample

Initially this study considers all the two hundred and thirty one listed non-financial companies at Dhaka Stock Exchange for the year 2019-20. Due to unavailability of corporate annual reports, incomplete information, inaccessibility to websites and fiscal year inconsistency, 76 companies are eliminated from the initial sample. Since the study is based on recent GRI Standards which are effective on or after 1 July 2018, financial years before 2018-19 are not considered in this study. Thus, the final sample consists of 310 firm-year observations from 14 different non-financial industries listed at DSE for the year 2018-19 and 2019-20. Table-1 represents the detailed sample descriptions.

Table-1: Sample Description

Industry	Sample Size	Percentage	Population
Cement	5	71%	7
Ceramics Sector	4	80%	5
Engineering	32	76%	42
Food & Allied	12	60%	20
Fuel & Power	17	77%	22
IT Sector	9	82%	11
Jute	0	0%	3
Miscellaneous	8	62%	13
Paper & Printing	4	100%	4
Pharmaceuticals & Chemicals	23	74%	31
Services & Real Estates	4	100%	4
Tannery Industries	2	33%	6
Telecommunication	1	33%	3
Textile	31	55%	56
Travel & Leisure	3	75%	4
Total	155	67%	231

4.2 Measurement of dependent variables

In this study, the GRI based economic dimension, environmental dimension, social dimension, and a composite of these three dimensions which is sustainability performance are considered as dependent variables. The specific indicators mentioned in the GRI guidelines (GRI 200 series: economic aspects, GRI 300 series: environmental aspects and GRI 400 series: social aspects) are used in this study to measure the economic performance, environmental performance, social performance, and sustainability performance of the sample non-financial companies.

To measure the three aspects of sustainability performance, the dichotomous scoring system is used in this study. This scoring system is also used in prior studies by Allegrini & Greco (2013), Mahmood & Orazalin (2017), Orazalin & Mahmood (2018), Orazalin & Mahmood (2020) this study examines relationships between corporate board characteristics and sustainability reporting (SR and Hassan et al., (2020). Under this dichotomous scoring system, when a specified disclosure requirement is found in the annual report, a value of 1 is provided and when the disclosure requirement is not found, a value of 0 is provided. The disclosure score is computed as follows:

$$SRPS = TPS / MPS$$

SRPS is the Sustainability performance score, TPS is the total performance score obtained by the company under each dimension and MPS is the maximum possible score under each dimension. To calculate sustainability performance score, the actual score obtained by each company is divided by the maximum possible score. Here, the maximum possible score for measuring the sustainability performance is 72.

For the purpose of further analysis, the economic performance score (ECPS), the environmental performance score (ENPS) and the Social Performance Score (SCPS) is calculated by using the above mentioned measure which is:

$$ECPS, ENPS, SCPS = TPS / MPS$$

To calculate performance score under each criterion, the actual score obtained by each company is divided by the maximum possible score. The maximum possible score for ECPS, ENPS and SCPS are 13, 25,

and 34, respectively. The detailed information of each indicator under the three dimensions of sustainability reporting is provided in appendix-A, B and C.

4.3 Independent Variables

Based on prior literature, to determine the factors that affect sustainability reporting practices of listed non-financial companies in Bangladesh, this study considers five independent variables which are firm performance, size, age, leverage, and auditor type. To measure firm performance Return on Equity (ROE) is considered as proxy variable. To measure Return on Equity, Net income is divided by total equity following the studies of Karaman et al., (2018) they downloaded GRI-based reports, and from the latter, they obtained financial data. The authors performed four-level analysis – report existence, report count, application level of report and firm performance – using various regression models (i.e. logistic regression, Poisson regression, ordered logistic regression and ordinary least squares regression and Orazalin & Mahmood (2020). Following the study of Arayssi et al., (2016), Karaman et al., (2018) they downloaded GRI-based reports, and from the latter, they obtained financial data. The authors performed four-level analysis – report existence, report count, application level of report and firm performance – using various regression models (i.e. logistic regression, Poisson regression, ordered logistic regression and ordinary least squares regression and Orazalin & Mahmood (2018, 2020), the ratio of total debt to total asset is used to compute the financial leverage, the natural logarithm of total asset is taken to measure the size of the firm, firm age is measured as the number of years since the inception of the company and auditor type is a binary variable where a value of 1 is provided if the company's financial statements are audited by Big 4 audit firms and 0 otherwise. Table-2 provides the summary of all dependent and independent variables.

4.4 Model Specification

By following the studies of Orazalin and Mahmood (2018, 2020), this study presents the following modified empirical model to estimate the relationship between the firm specific factors and sustainability reporting:

$$SRPS_{it} = \beta_0 + \beta_1 (ROE_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (AGE_{it}) + \beta_4 (LEV_{it}) + \beta_5 (AUD_{it}) + \varepsilon_{it}$$

Where, $SRPS_{it}$ is the quality of sustainability reporting including the economic, environmental, social, and overall sustainability performance score of company i at time t . ROE_{it} is return on equity, $SIZE_{it}$ is the size of the company, AGE_{it} is the age of the company, LEV_{it} is the leverage ratio, AUD_{it} is the type of auditor, ϵ_{it} is the error term, i represents company and t represents time. For statistical analysis, the Stata software (edition 14) is operated in this study.

Table-2: Variable Description

Variable Name	Acronym	Type	Operationalization
Economic Performance Score	ECPS	Dependent	Actual performance score under economic dimension divided by maximum possible score (13).
Environmental Performance Score	ENPS	Dependent	Actual performance score under environmental dimension divided by maximum possible score (25).
Social Performance Score	SCPS	Dependent	Actual performance score under social dimension divided by maximum possible score (34).
Sustainability Performance Score	SRPS	Dependent	Sum of scores from above three dimensions divided by maximum possible score (72).
Return on Equity	ROE	Independent	Net income after tax divided by total equity
Firm Size	SIZE	Independent	Natural logarithm of total assets
Firm Age	AGE	Independent	Number of years since company's foundation
Leverage	LEV	Independent	Total debt divided by total assets
Auditor Type	AUD	Independent	A value of 1 is provided if audited by Big 4 audit firms and 0 otherwise

5.0 Empirical Findings

This section presents the descriptive statistics, Pearson correlation matrix and empirical findings of the study.

5.1 Descriptive statistics

Table-3 reports the descriptive statistics (observation, mean, standard deviation, minimum and maximum) of dependent variables. The sustainability performance score has a mean value of 22.42 percent which varies between 0 to 52.78 percent, with a standard deviation of 9.63 percent. The average values of ECPS, ENPS and SCPS are 34.57, 18.83 and 20.43 percent which indicates that sample non-financial companies are more willing to disclose economic indicators compared to environmental and social indicators. The similar result is found by Orazalin & Mahmood (2020) where the average value of economic, environmental and social dimensions were 18.49, 8.45 and 9.05 percent respectively, illustrating that more indicators of economic dimension are reported by publicly traded companies in Kazakhstan. Yadava & Sinha (2016) in their empirical study on leading public and private Indian companies, also found better economic disclosure compared to other 2 dimensions of sustainability reporting which also supports the findings of current study.

Table-3: Descriptive Statistics on Sustainability Performance

Variables	Obs.	Mean	Std. Dev.	Min	Max
SRPS	310	.2242384	.0963951	0	.5277778
ECPS	310	.3456576	.1454971	0	.7692308
ENPS	310	.1882581	.1217411	0	.68
SCPS	310	.2042694	.0856769	0	.5

Table-9 presents the descriptive statistics on independent variables for the years 2019 and 2020. Here, the mean value of Return on Equity (ROE) is -2.338, and the standard deviation is 39.55371 which shows a wide variation among the sample non-financial companies. The minimum value of ROE is -694.93 and the maximum value is 6.5873. The reason behind this high standard deviation and large variation of ROE among the non-financial companies may be due to the negative impact of covid-19 on some industries in 2020. The average age of non-financial companies in Bangladesh is 27 years and ranges between 7 to 118 years which indicates a wide variation

as well. The average leverage ratio is .5718 with a range of minimum .01125 and maximum 36.84883. The size of the sample non-financial companies is expressed as natural logarithm of total assets. Of the non-financial companies in Bangladesh, 15.81 percent companies' financial statements are audited by Big 4 audit firms.

Table-4: Descriptive analysis on independent variables

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ROE	310	-2.338377	39.55371	-694.9302	6.587256
SIZE (ln)	310	22.10777	2.09339	.0112517	36.84883
AGE	310	27.73871	14.81273	7	118
LEV	310	.5718364	2.09339	.0112517	36.84883
Binary Variable		Yes (1)	Yes (%)	No (0)	No (%)
AUD	310	49	15.81%	261	84.19%

5.2 Pearson correlation matrix and multicollinearity

Table-10 shows the Pearson correlation matrix among all dependent and independent variables. From this table, it is found that ROE, SIZE, AGE and AUD are positively related with ECPS, ENPS, SCPS and SRPS which is consistent with our stated hypotheses. Leverage (Lev) is negatively related with ENPS, SCPS and SRPS. This finding is similar to Orazalin & Mahmood (2018) since the authors found a negative relationship among leverage and economic, environmental, social and sustainability performance. The correlation coefficients among independent variables indicate that multicollinearity problem is not present in this study. According to Pallant (2001) if the value of correlation coefficients is less than 0.7 then there is no multicollinearity among the variables.

Table-5: Pearson Correlations among dependent and independent variables

	ECPS	ENPS	SCPS	SRPS	ROE	SIZE	AGE	LEV	AUD
ECPS	1.0000								
ENPS	0.6504*	1.0000							
SCPS	0.6510*	0.6870*	1.0000						
SRPS	0.8310*	0.9041*	0.8984*	1.0000					
ROE	0.0722	0.0329	0.0196	0.0423	1.0000				
SIZE	0.3174*	0.4085*	0.4269*	0.4448*	-0.0620	1.0000			
AGE	0.0620	0.0673	0.0499	0.0674	0.0158	0.0478	1.0000		
LEV	0.0251	-0.0316	-0.0299	-0.0196	-0.0123	0.0984	0.0988	1.0000	
AUD	0.2286*	0.2048*	0.2788*	0.2691*	0.0266	0.2894*	0.1799*	-0.0223	1.0000

Notes: *significant at 5% level

To check further about the multicollinearity issue, the VIF has been calculated. Table-11 shows the Variance Inflation Factors (VIF) values of all independent variables which are return on equity, size of the firm, age of the firm, leverage, and type of auditor. This table shows that all the VIF values are less than 5 and all the (1/VIF) values are less than 1. Therefore, multicollinearity problem is not present in this study.

Table-6: Variance Inflation Factors of independent variables

	VIF	1/VIF
ROE	1.13	0.882437
SIZE	1.11	0.900328
AGE	1.05	0.956696
LEV	1.02	0.976445
AUD	1.01	0.993850
Mean VIF	1.06	

5.3 Regression Results

In this section, the regression results of the 4 models have been explained. Sustainability performance score (SRPS) in Model-1, Economic performance score in model-2, Environmental performance score in Model-3 and Social performance score in Model-4 are considered as dependent variables. The Ramsey RESET test, the Breusch-Pagan-Godfrey test, Durbin-Watson test and some other tests have been performed to ensure whether the estimated regression models satisfy the OLS assumptions. Except the assumption of homoscedasticity, all other assumptions have been satisfied. Hence, this study uses robust pooled-OLS regression to solve the problem of heteroscedasticity. Table-12 shows the regression output of model-1,2,3 and 4. The estimated coefficients of Return on Equity are positively related with sustainability performance, economic performance, environmental performance, and social performance at 1% significant level. This finding is supported by prior studies (Liu & Anbumozhi, 2009; Orazalin & Mahmood, 2020; Ruhnke & Gabriel, 2013). This statistically significant positive association indicates that profitable non-financial firms in Bangladesh disclose more information related to sustainability including all the 3 dimensions of sustainability in order to legitimate business operation and to provide signals to stakeholders. Hence, hypothesis-1 is accepted based on signaling theory and legitimacy theory. Firm size is also positively related with sustainability performance including all 3 dimensions of sustainability reporting at 1% significant level. In reference to this finding, Orazalin & Mahmood (2020) found a positive association between size and sustainability reporting practices of Kazakhstani public companies. Thus, hypothesis-2 is accepted and illustrates that larger non-financial companies in Bangladesh disclose more sustainable information in corporate annual reports with a view to creating positive impact about the company and ensuring greater transparency. With regard to firm age, the estimated coefficients are statistically insignificant which implies that firm age does not contribute to the sustainability performance, economic performance, environmental performance, and social performance of Bangladeshi non-financial companies. In this regard, Orazalin & Mahmood (2020) in their empirical study found no impact of age on sustainability performance in Kazakhstan. Therefore, hypothesis-3 is not supported. The estimated coefficients of leverage are negatively related with SRPS, ENPS and SCPS at 1% significant level. This finding is supported by Kuzey & Uyar (2017) as the authors found a weak negative relationship between leverage and sustainability reporting practices of Turkish publicly traded companies at the Borsa Istanbul.

Table-7: Regression result of model-1,2,3 and 4 using robust OLS estimation

	Model-1 (SRPS)	Model-2 (ECPS)	Model-3 (ENPS)	Model-4 (SCPS)
ROE	.0001535***	.0003144***	.0001652***	.0000833***
p-value	(0.000)	(0.000)	(0.000)	(0.000)
SIZE	.0250851***	.0258012***	.0302607***	.0210057***
p-value	(0.000)	(0.000)	(0.000)	(0.000)
AGE	.0001754	.0002154	.0003306	.0000459
p-value	(0.693)	(0.732)	(0.620)	(0.891)
LEV	-.0027104***	-.0000331	-.0041819***	-.0026521***
p-value	(0.000)	(0.970)	(0.000)	(0.000)
AUD	.0374669**	.0561795**	.0268674	.0381059***
p-value	(0.027)	(0.022)	(0.251)	(0.008)
Constant	-.3392147***	-.2388496*	-.4913776***	-.2657051***
p-value	(0.000)	(0.053)	(0.000)	(0.000)
R-sq.	0.2271	0.1289	0.1841	0.2141
N	310	310	310	310

Notes: ***Significant at 1% level, **Significant at 5% level and *Significant at 10% level

Orazalin & Mahmood (2020) also reported a negative and statistically significant association between leverage and sustainability performance. Hence, hypothesis-4 is not supported as H4 posits that there is a positive


relationship between leverage and the sustainability reporting practices of listed non-financial companies in Bangladesh. The possible reason behind this negative association might be the target of achieving short term goals instead of sustainable goals by highly levered companies (Kuzey & Uyar, 2017). Another probable explanation might be that creditors and lenders give less importance to the sustainability performance of companies, hence levered companies disclose less sustainable information compared to unlevered companies (Liu & Anbumozhi, 2009). The reported coefficients of AUD are positively and significantly related with SRPS, ECPS and SCPS. This implies that non-financial companies in Bangladesh disclose more sustainability information in corporate annual reports if the company's financial statements are audited by Big 4 audit firms. Hence, hypothesis-5 is partially accepted. Regarding this, Orazalin & Mahmood (2018) found that auditor type is positively related with economic performance, social performance and sustainability performance in Russia. The similar result is also reported by Orazalin & Mahmood (2020) in their empirical study in Kazakhstan.

In conclusion, the empirical finding of the study reveal that firm performance, size of the firm and type of auditor are the determinants of GRI-based sustainability performance of listed nonfinancial companies in Bangladesh.

6.0 Conclusions

This study examines the relationship between the underlying determinants (firm performance, firm size, firm age, leverage, and auditor type) and sustainability performance of the sample non-financial companies listed at Dhaka Stock Exchange for the years 2019 and 2020. The empirical findings of the study reveal that firm performance is positively related with sustainability performance at 1% significant level and this finding is supported by prior studies (Liu & Anbumozhi, 2009; Orazalin & Mahmood, 2020; Ruhnke & Gabriel, 2013). The results also show a positive association between firm size and sustainability performance including all 3 dimensions. In reference to this finding, Orazalin & Mahmood (2020) found a positive association between size and sustainability reporting practices of Kazakhstani public companies. With regard to firm age, the estimated coefficients are statistically

insignificant and this result is supported by Orazalin & Mahmood (2020) who found no impact of age on sustainability performance in their empirical study in Kazakhstan. Leverage is negatively related with sustainability performance and in this regard Kuzey & Uyar (2017) found a weak negative relationship between leverage and sustainability reporting practices of Turkish publicly traded companies. Furthermore, auditor type is positively and significantly related with sustainability performance which implies that non-financial companies in Bangladesh disclose more sustainability information if the company's financial statements are audited by Big 4 audit firms. The similar result is also found by Orazalin & Mahmood (2018) and Orazalin & Mahmood (2020). The above findings of this study will allow the policy makers, practitioners and regulators to take proper initiatives with a view to improving sustainability reporting practices in line with GRI standards by focusing on the factors that affect sustainability performance.

The major limitation of the study is that it has excluded financial industries from the sample due to different financial year, thus, the generalized sustainability reporting practices of Bangladeshi companies of this study will not be appropriate for financial sector. This study considers only 2 financial years referring to 310 firm year observations. Since this study is based on latest GRI standards effective from July 1, 2018, hence the author selected 2018-19 and 2019-20 financial years as the study period. Further research focusing on financial industries and a longer time span can reduce this research limitation. Finally, manual content analysis of the annual reports of sample non-financial companies might be affected by the subjective judgement of the author. Most of the Bangladeshi companies don't prepare standalone sustainability reports or don't use a separate portion of annual reports to disclose sustainability indicators, therefore the annual reports have been scrutinized from the beginning to the end. This variability and dissimilarity of contents among sample companies might have an impact on sustainability performance score, economic performance score, environmental performance score and social performance score. So, proper steps should be taken to reform national-level policy for uniform sustainability reporting practices in the emerging market context. 

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Appendix-A

Sl. No.	Economic Aspects	Reference
1	Direct economic value generated and distributed (EVG&D)	Disclosure 201-1
2	Financial implications and other risks and opportunities due to climate change	Disclosure 201-2
3	Defined benefit plan obligations and other retirement plans	Disclosure 201-3
4	Financial assistance received from government	Disclosure 201-4
5	Ratios of standard entry level wage by gender compared to local minimum wage	Disclosure 202-1
6	Proportion of senior management hired from the local community	Disclosure 202-2
7	Infrastructure investments and services supported	Disclosure 203-1
8	Significant indirect economic impacts	Disclosure 203-2
9	Proportion of spending on local suppliers	Disclosure 204-1
10	Operations assessed for risks related to corruption	Disclosure 205-1
11	Communication and training about anti-corruption policies and procedures	Disclosure 205-2
12	Confirmed incidents of corruption and actions taken	Disclosure 205-3
13	Legal actions for anti-competitive behaviour, anti-trust, and monopoly practice	Disclosure 206-1

Appendix-B

Sl. No.	Environmental Aspects	Reference
1	Materials used by weight or volume	Disclosure 301-1
2	Recycled input materials used	Disclosure 301-2
3	Reclaimed products and their packaging materials	Disclosure 301-3
4	Energy consumption within the organization	Disclosure 302-1
5	Energy consumption outside of the organization	Disclosure 302-2
6	Energy intensity	Disclosure 302-3
7	Reduction of energy consumption	Disclosure 302-4
8	Reductions in energy requirements of products and services	Disclosure 302-5
9	Water withdrawal by source	Disclosure 303-1
10	Water sources significantly affected by withdrawal of water	Disclosure 303-2
11	Water recycled and reused	Disclosure 303-3
12	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Disclosure 304-1
13	Significant impacts of activities, products, and services on biodiversity	Disclosure 304-2
14	Habitats protected or restored	Disclosure 304-3
15	IUCN Red List species and national conservation list species with habitats in areas affected by operations	Disclosure 304-4
16	Direct (Scope 1) GHG emissions	Disclosure 305-1
17	Energy indirect (Scope 2) GHG emissions	Disclosure 305-2
18	Other indirect (Scope 3) GHG emissions	Disclosure 305-3
19	GHG emissions intensity	Disclosure 305-4
20	Reduction of GHG emissions	Disclosure 305-5
21	Emissions of ozone-depleting substances (ODS)	Disclosure 305-6
22	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Disclosure 305-7
23	Non-compliance with environmental laws and regulations	Disclosure 307-1
24	New suppliers that were screened using environmental criteria	Disclosure 308-1
25	Negative environmental impacts in the supply chain and actions taken	Disclosure 308-2

Appendix-C

Sl. No.	Social Aspects	Reference
1	New employee hires and employee turnover	Disclosure 401-1
2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Disclosure 401-2
3	Parental leave	Disclosure 401-3
4	Minimum notice periods regarding operational changes	Disclosure 402-1
5	Worker's representation in formal joint management-worker health and safety committees	Disclosure 403-1
6	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Disclosure 403-2
7	Workers with high incidence or high risk of diseases related to their occupation	Disclosure 403-3
8	Health and safety topics covered in formal agreements with trade unions	Disclosure 403-4
9	Average hours of training per year per employee	Disclosure 404-1
10	Programs for upgrading employee skills and transition assistance programs	Disclosure 404-2
11	Percentage of employees receiving regular performance and career development reviews	Disclosure 404-3
12	Diversity of governance bodies and employees	Disclosure 405-1
13	Ratio of basic salary and remuneration of women to men	Disclosure 405-2
14	Incidents of discrimination and corrective actions taken	Disclosure 406-1
15	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Disclosure 407-1
16	Operations and suppliers at significant risk for incidents of child labour	Disclosure 408-1
17	Operations and suppliers at significant risk for incidents of forced or compulsory labour	Disclosure 409-1
18	Security personnel trained in human rights policies or procedures	Disclosure 410-1
19	Incidents of violations involving rights of indigenous peoples	Disclosure 411-1
20	Operations that have been subject to human rights reviews	Disclosure 412-1
21	Employee training on human rights policies or procedures	Disclosure 412-2
22	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Disclosure 412-3
23	Operations with local community engagement, impact assessments, and development programs	Disclosure 413-1
24	Operations with significant actual and potential negative impacts on local communities	Disclosure 413-2
25	New suppliers that were screened using social criteria	Disclosure 414-1
26	Negative social impacts in the supply chain and actions taken	Disclosure 414-2
27	Political contributions	Disclosure 415-1
28	Assessment of the health and safety impacts of product and service categories	Disclosure 416-1
29	Incidents of non-compliance concerning the health and safety impacts of products and services	Disclosure 416-2
30	Requirements for product and service information and labelling	Disclosure 417-1
31	Incidents of non-compliance concerning product and service information and labelling	Disclosure 417-2
32	Incidents of non-compliance concerning marketing communications	Disclosure 417-3
33	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Disclosure 418-1
34	Non-compliance with laws and regulations in the social and economic area	Disclosure 419-1