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Effect of Environmental Accounting and Reporting on Financial Performance: Evidence from DSE Listed Fuel and Power Sector Companies

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Abstract

Globally, Bangladesh is considered one of the most climate-vulnerable countries. Subsequently, this study aimed to find out how environmental accounting and reporting (EAR) is performed by the 23 companies listed on the Dhaka Stock Exchange (DSE) in the fuel and power sector. Additionally, the study assessed the association between the performance of the Environmental Accounting and Reporting Practices Index for Fuel and Power Industry (EARPIFPI) and selected financial performance indicators. The authors developed a self-constructed index, EARPIFPI, to measure the degree of EAR practices of the companies. The findings of the study indicate that the performance of EAR practices is abysmal and disappointing, ranging from 0 to 38 (according to pre-developed index items). Out of twenty three companies, seven companies reported no issues regarding EAR practices, indicating an inclination to achieve lower disclosures and reporting practices. Of the fifteen companies reported four had less than five index items, three from five to ten and six with eleven to twenty while two exceeded thirty. The variety of reporting practices and settings highlights the need for a mandatory regularity framework in Bangladesh. In addition, EAR is also found to have a statistically significant effect on financial performance measure such as net profit after tax (NPAT), earnings per share (EPS), net assets par value share (NAVP), return on equity (ROE) and return on assets (ROA). The study will eventually help the government of Bangladesh to promulgate regulations for companies against EAR practices related to climate change, environmental protection and environmental sustainability.

***Keywords*:** Environmental accounting; environmental reporting; environmental sustainability; climate change; mitigation approaches

1. Introduction

As the industrial sector grew, it became clear that human activities were harming the environment all around the world. The company must put the needs of its owners and management first, but it must also put the needs of other important stakeholders, such as workers, customers, the community, and the environment. The company's existence is directly connected to the interests of many stakeholders. One thing to think about is help for the environment. Protecting the environment, in addition to helping society, is also good for the business in the long run (Homan, 2016). Environmental accounting is a way

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for businesses to keep track of how their actions affect the environment. It combines ideas about protecting the environment and managing it with ways to analyze and report on costs and benefits. Environmental accounting and reporting are becoming more and more important in businesses, coupled with making money and maximizing shareholder value. Because of environmental problems, everyone involved in a company is learning more about and wanting to integrate environmental factors in their work. Because of this, more and more people want businesses to be open about how their everyday activities affect the environment. This has led to more environmental reporting. Environmental accounting may be used to keep track of, record, and manage environmental spending. It adds environmental data to normal accounting systems so that businesses may make smart decisions that take into consideration both the financial and environmental effects. Companies may use environmental data to help them adopt sustainable practices and promote ecological responsibility (Sundarasen *et al.,* 2024).Therefore, environmental sustainability is essential. Organizations need to be more accountable regarding the environmental impacts of their operations. Today, stakeholders judge organizations not only on their financial performance, but also on their commitment to environmental sustainability. Globally, investors and stakeholders are increasingly demanding that organizations demonstrate positive environmental practices.

1.1. Environmental Accounting and Reporting for Environmental Sustainability

EAR examine how well a company address, finds, and shares the risks and opportunities associated with climate, while also considering its strategy for managing climate risks and financial planning to lower those risks. Furthermore, environmental accounting and reporting assess companies' positions regarding environmental management. Investors now view sound management of the environment as a crucial component of virtuous authority (Chan & Welford, 2005). Finally, to all interested parties, relevant information regarding industrial risks to human health and the environment is important day by day. Recently, public disclosure of EAR has extended to corporate practices. It is believed that these measures could have significant financial consequences for polluters, leading to a loss of goodwill from communities, employees, shareholders, financial institutions, local government, and citizens (Sinclair-Desgagne & Gozlan, 2003). Energy, fuel, and power sectors are closely associated with environmental issues and call for greater accountability through enhanced environmental reporting disclosures (Nowiski, 2018).

1.2. Environmental Impact of Energy, Fuel, and Power Sectors

There is a close association between energy and the environment since it is impossible to produce, consume, and transport energy without significant environmental impact. Energy production and consumption directly cause environmental reparations, including air, water, and thermal contamination; the disposal of solid waste; and alterations to the environment. Burning fossil fuels makes the air dirty and is thought to be a significant driver of greenhouse gas emissions and air pollution in cities (Soltani *et al.,* 2021). Diverse water pollution problems also result from energy use. On earth or in a body of water, there is a significant probability of oil spilling (Singh *et al.,* 2020). Additionally, coal mining is also responsible for water pollution and changes in the flow of groundwater. The generation of solid waste from energy usage also poses a significant

threat to the environment. The carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) are mostly caused by humans and generated by power plants based on fossil fuels, including coal, oil, and natural gas. The carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), and mercury are adding to climate change and making the planet warmer (Cimbolakova *et al.,* 2019; Afjukwa *et al.,* 2021). These impacts can be seen in intensifying sea heights, melting of ice caps, macroclimate change, insect-borne diseases of humans and crops, hotter radiators and summer weather, amplified incidences of austere tornadoes, ground water lowering, water temperature rising, changes in local ecologies, changes in mountain settings, amplified forest fires, abridged ice, amplified heat pressure and death in summer, disruption of natural ecology and biodiversity, increased riverbank erosion, increased soil infertility, decreased soil nutrient bearing capacity, reduced crop productivity, and soil degradation.

1.3. Environmental Accounting and Reporting Practices in Global perspective

The legal and regulatory framework in both the USA and the UK regulates environmental activity, influences ecological enactment, and ultimately determines the types of reporting prepared (Holland & Foo, 2003). Decarburization pathways and technology choices can generate major environmental co-benefits. For Australian companies, according to the new rules from the Australian Securities Exchange, ESG disclosures have become crucial reporting requirements (De Silva Lokuwaduge & De Silva, 2020).

1.4. Environmental Accounting and Reporting Practices in Bangladesh

Relatively insignificant climate change reporting disclosures are found in the companies of Bangladesh (Masuma *et al.,* 2019). Of them, corporate environmental reporting in Bangladesh is mostly qualitative and differentiated by location (Akther, 2017). In Bangladesh, for the both financial and nonfinancial segment, professional bodies along with government and international policymakers are required to formulate a distinct regularity framework for EAR practices (Masud *et al.,* 2017). In Bangladesh, the extent and volume of environmental reporting is very truncated and disappointing. The environmental aspect of sustainability reporting practices of the banking companies functioning in Bangladesh is observed inadequate and did not meet the standards of global reporting initiatives guidelines (Islam *et al.,* 2020). Most companies only disclose the energy use category. Very few companies made disclosures in specific categories, like greenhouse gas emissions and adaptation measures. Environmental accounting disclosure is very poor in Bangladesh. In this situation, it can improve environmental accounting disclosure as a regulatory requirement (Sarker & Ahamed, 2020).

Bangladesh, one of the most climate-vulnerable nations, requires corporations operating there to adhere to fundamental environmental sustainability standards. Considering these, this study aims to identify the volume and degree of EAR practices by the companies listed on the DSE in the fuel and power sector and to evaluate the effect of EAR practices on a company's selected financial performance indicators.

2. Literature Review and Hypotheses Development

Recently, in the accounting domain, environmental issues emerged as a topic of enormous importance. Stakeholders' concerns are not only confined to the financial

performance of firms but also with non-financial performance, leading to rising pressure for environmental reporting. So, here weare talking about how deep the researches on EAR practices in Bangladesh and throughout the world are.

2.1. Environmental Accounting and Reporting towards Environmental Sustainability

Adding environmental accounting to corporate governance frameworks, especially in developing nations, might make businesses more transparent and responsible by requiring them to clearly acknowledge their environmental effects. This builds confidence among all the people who have an interest in the business, such investors, consumers, and regulators, as environmental scrutiny and regulatory oversight grow. Second, environmental accounting may help businesses manage risk better by finding and reducing environmental risks like pollution and resource depletion, while also helping them follow local and international environmental laws. Third, adding environmental accounting to a company's long-term business plan links its practices to the UN's Sustainable Development Goals (SDGs). This means that businesses may be financially successful while also protecting the environment. This makes it easier to make strategic decisions by giving you information that might help you decide whether to invest in green technology and resource efficiency, which will make your business more sustainable and competitive. Companies that follow these rules are more likely to get international investors since sustainability is now a top priority for global investors (Sundarasen et al., 2024). Sustainable development seems to be an unequivocal and self-evident goal; nonetheless, a more comprehensive examination of the concept uncovers several critical inquiries about the present configuration of the world and the prospective framework of society. The links between the economy, the environment, and society all depend on sustainability. Sustainable development is a fundamentally powerful idea that can help us move from our present unsustainable way of life to one where people and the environment can live together. Even yet, the evidence we have now, although not all the same, appears to show that sustainability is still holding its own against this kind of appropriation via environmental accounting (Bebbington, 1997).

Corporate reporting on environmental issues has become a vibrant concern in the business world. Demand from stakeholders has been rising for corporate environmental reporting disclosures. Environmental conservatism is considered a crucial corporate social responsibility. Corporations' activities create the environmental crisis, which necessitates their payment. Though there are no standard guidelines on corporate environmental reporting disclosure, until now it is considered voluntary without having a specific format and design (Islam *et al.,* 2020). Chelli *et al. (2018)* evaluated and compared the reporting practices on the environment between French and Canadian enterprises based on the eye of official lawfulness. The study revealed that the French legislative rule outperformed Canadian stock exchange regulations in inducing environmental disclosure. Additionally, GRI united with the native system stimulates environmental disclosures (Chelli *et al.,* 2018). Madein (2020) found that rules and programs from the Japanese government and other countries that were discovered to encourage environmental reporting had positive effects on regulative, normative, and cognitive factors. Kouloukoui *et al., (2019)* found that Brazilian corporations reported

information on climate risk; nonetheless, this type of disclosure remained relatively truncated. Kilincarslan *et al.,* (2020) found that firms with high governance exhibited better environmental disclosure practices. There is a growing tendency of practicing Corporate Environmental Disclosure (CED) in Sri Lanka (Nuskiya *et al.,* 2021).

The overall environmental disclosure performances by the companies operating in Bangladesh are very disappointing and relatively low. Furthermore, significant variations have been observed in reporting environmental risk disclosures (Uddin *et al.,* 2022). Green banking regularity recommendations were delivered by the Bangladesh Bank, and they have had a significant positive impact on the level of green banking disclosure (Bose *et al.,* 2018). In Bangladesh, there is a substantial dissimilarity in social and environmental disclosures. Qualitative information on social and environmental information was provided voluntarily by the few companies. Companies operating in Bangladesh reported the lowest volumes of social and environmental disclosures (Hossain *et al.,* 2006).

2.2. Association of EAR Practices with Firms Financial Performance

The financial performance of the firms was found to have an insignificant and neutral association with environmental reporting, and it doesn't impact the company's market value (Deswanto & Siregar, 2018). There is no significant positive association of environmental reporting with firm value and relationship between environmental performance and firm value were not mediated by the environmental reporting, but firms with environment-friendly promises could be used as a approach for increasing firm value (Utomo *et al.,* 2020). Financial performance found to have significant negative relationship with environmental performance, whereas environmental performance has a significant positive association with environmental disclosures (Lu & Taylor, 2018). Furthermore, emissions and environmental disclosures were found to have a significant affirmative connotation with economic performance (Hassan & Romilly, 2018). Environmental performance and environmental reporting have a significant positive association with firms' monetary performance (Haninun *et al.,* 2018).

Amahalu (2020) showed the positive significant influence of environmental cost disclosures on the net income (NPAT) of energy supply companies listed on the Nigeria Stock Exchange. Malarvizhi & Matta (2016) determined the relationship of corporate environmental disclosure (CED) and net profit margin or after-tax net income. In light of these findings, this study posits that environmental risk disclosure significantly influences net profit after tax (NPAT).

Gerged *et al.,* (2021) intended to determine the significant positive connotation among Corporate Environment Disclosure (CSD) and Return on Assets (ROA). Alsaifi *et al.,* (2020) inspected the association among carbon disclosure projects (EDPs) and the ROAs of the UK's corporations that have a direct or indirect association with CO2 emissions. Motivated by these empirical studies, this study intends to assess the influence of the EAR on the ROAs of Bangladeshi energy supply companies.

Abdel Jaleel & Ousama (2016) studied the relationship between environmental risk, environmental disclosure, and financial performance (ROE and profit margin) of 42 Qatar exchange companies. Pedron *et al.,* (2021) analyzed the effect of the environmental

information disclosure practice on the Brazilian stock market's profitability and value. Following these studies, this research investigates the influence of environmental disclosure risk on the return on equity

According to Paolone *et al.,* (2021), they did a regression analysis to look into the link between Italian listed companies' financial performance, market value of equity per share (MVPS), and earnings per share (EPS) from 2017 to 2018. Okafor (2018) examined data from Nigerian non-financial firms to investigate the relationship between environmental prevention expenditure disclosure (EPED), waste disposal and emission treatment cost disclosure (WDCD), and prevention and environmental management cost disclosure (PMCD) with earnings per share (EPS). These studies motivate the determination of the impact of the EAR on EPS.

Dobler *et al.,* (2014) used total assets (asset size) as a variable to determine the impact of environmental risk, environmental performance, and risk management on the financial performance of US firms. Accordingly, the authors intend to find out whether any relationship exists between the EAR and the total assets of the fuel and power industry.

There was a lot of research on global environmental accounting and reporting, climate risk disclosure, and environmental risk disclosure, but the results were not all the same because they used different data and different methods. More and more, stakeholders are calling for companies to show that they care about environmental issues. Sustainability requires companies to take more responsibility for protecting the environment and reducing their environmental impacts. Consequently, firms have discovered that environmental accounting and reporting function as essential instruments for conveying their environmental viewpoints and aiding in environmental planning and policy formulation. Consequently, literature on EAR exists both internationally and in Bangladesh. In Bangladesh, the level and scope of environmental accounting and reporting standards are markedly insufficient, warranting a thorough examination. Thus, this study has been initiated.

3. Materials and Methods

3.1. Model for calculating individual performance of the company

Uddin et al., (2022) used this type of model to explore the extent to which, at corporate level, companies report environmental issues in form of environmental risk disclosure in their annual report. Rashid et al., (2025) employed this type of model to explore the present status of human development and human capital reporting practices made by the companies operation in Bangladesh in their corporate annual report. Additionally, Islam et al., (2025) used same type of model for calculating the carbon accounting practices addressed by the companies in Bangladesh at their corporate level. In all the literatures, in case of dichotomous variable, with the value between 0 and 1, this type of model has been used. Accordingly, the formula developed by the authors for calculating individual firm performance, as employed by Rashid *et al.,* (2025), Islam *et al.,*(2025), and Uddin et al. (2022), is given below.

$$\text{Performance} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_i I_j}{m}$$

Where, X = Individual company

I = Performance item

n = Number of companies

m = Number of performance item

3.2. Dataset

The dataset is made up of data derived from the DSE listed 23 fuel and power companies reported on environmental issues from 2023 to 2024. The data came from the annual reports, as of July 1, 2024. This study applied content and thematic analysis to the firm's corporate annual reports. Proper disclosure of the pre-developed indexed items earned a score of 1, while improper disclosure resulted in a score of 0. The total value of environmental risk disclosure reporting ranges from 0 to 1. A score of 0 indicates the nonappearance of environmental reporting, whereas a score of 1 indicates the full disclosure of environmental issues.

3.3. Environmental Accounting and Reporting Practices Index for Fuel and Power Industry (EARPIFPI):

The authors developed the Environmental Accounting and Reporting Practices Index for the Fuel and Power Industry (EARPIFPI) based on an assessment and comprehension of the literature, including ESRBPG, 2015; CRAEPS-ADB, 2012; and ISO-Energy, 2018. The authors have discovered and documented a total of six (6) headings and forty (40) components of EARPIFPI. Details are given in Table 1.

Table 1: Components of EARPIFPI

General Disclosures (GD)	
Establishing an environmental policy, strategy, and action plan	GD_1
Green environmental practice	GD_2
Eco-friendly in house office management	GD_3
Environmental management manuals and guidelines	GD_4
Waste, Water, Waste Water Management (WWWWM)	
Waste minimization, recycle, and reuse	$WWWWM_1$
Provisions of waste bins and cans	$WWWWM_2$
Proper disposal of solid waste	$WWWWM_3$
Measure to mitigation of waste generation	$WWWWM_4$
Adapting proper waste and wastewater management	$WWWWM_5$
Recycling and reuse of wastewater	$WWWWM_6$
Use of best available technology	$WWWWM_7$
On-site effluent treatment	$WWWWM_8$
Pollution Mitigation and Emission Reduction Management (PMERM)	
Adaptation of mitigating measures in reduction of water, air, noise pollution	$PMERM_1$
Sustainability for and by information technology	$PMERM_2$
Emission management plan and guidelines	$PMERM_3$
Limiting GHG emission by using modern construction equipment's	$PMERM_4$
Using Equipment with high level of emission control	$PMERM_5$
Measure to reduce SO_2 and NO_2 emission	$PMERM_6$
Scorching low sulfur gratified coal to decrease SO_2 releases	$PMERM_7$

Measure to minimize generations of noise from operation	$PMERM_8$
Proper handling of lubricating oil and fuel	$PMERM_9$
Land use management plan	$PMERM_{10}$
Industry Specific Disclosures (ISD)	
Disclosing the sources of fuel received	OEE_1
Disclosing the sources of power generated	OEE_2
Energy management and energy savings	OEE_3
Automation systems and integration	OEE_4
Renewal energy use initiatives	OEE_5
Initiatives to achieve optimum nuclear safety	OEE_6
Adaptation of chance find procedure	OEE_7
Societal-Environmental Engagement (SEE)	
Pollution preventive awareness initiatives	SEE_1
Greening the Plant, Factory	SEE_2
Social environmental campaign	SEE_3
Staff training	SEE_4
Partnerships and stakeholder engagement	SEE_5
Community awareness and involvement	SEE_6
Environmental Accounting , Reporting and Auditing (EARA)	
Reported environmental issues in annual reports	$EARA_1$
Environmental audit program/ committee	$EARA_2$
Communicate results with shareholders	$EARA_3$
Public Disclosures	$EARA_4$
Donation to climate fund	$EARA_5$

Source: Developed by Authors

3.4. Scoring Mechanism

The content analysis approach is employed to discern attributes and quantify information in a text by categorizing it based on established criteria, allocating each information unit to a category, and tallying the total occurrences and frequencies within each category (Data & Silverman, 2011). This study evaluated the degree and extend of corporate implementation of 'Environmental Accounting and Reporting' in their annual reports. This study mostly examines the content and thematic analysis of annual reports from the selected companies. The study carefully put up the information by using the annual reports of several companies. The indexed items that were chosen got a score of 1 for correct disclosure and 0 for not disclosing. There is a scale from 0 to 1 for evaluating environmental accounting and reporting practices. A score of 1 means that environmental accounting and reporting disclosed; whereas a score of 0 means that they are not. For each chosen firm, an Excel spreadsheet was made. The rows showed the score that was gained, and the columns showed the different parts of the index.

3.5. Model Specification

The degree to which environmental accounting and reporting methods demonstrate both advantageous and adverse connections with the organization’s financial performance, especially in relation to profitability, profit margin, liquidity risk, and analogous indicators

(Bose *et al.,* 2018; Deswanto & Siregar, 2018; Utomo *et al.,* 2020; Hassan & Romilly, 2018; Kouloukoui *et al.,* 2019). In order to meet the goals of this study, the model is used to find out how Environmental Accounting and Reporting (EAR) is related to key financial performance metrics as NPAT, ROA, ROE, EPS, and NAPS (Ahmad et al., 2025). The model delivers a coherent and systematic study of the correlation between EAR practices and financial success, as quantified by multiple indicators through regression equations. It builds on previous research by providing a systematic way to quantify the good and bad effects of EAR on a company's financial performance. The model's simplicity and focus on key financial variables render it suitable for hypothesis testing; any unobserved factors influencing other variables are included in the error term, so enhancing the robustness of the analysis (Burton 2021). This study establishes the following model to assess the correlation between the volume of environmental accounting and reporting procedures and the financial success of the organization.

$$NPAT = \beta_0+\beta_1 EAR +e_0 \quad (1)$$

$$ROA = \beta_0+\beta_1 EAR +e_0 \quad (2)$$

$$ROE = \beta_0+\beta_1 EAR +e_0 \quad (3)$$

$$EPS = \beta 0+\beta_1 EAR +e_0 \quad (4)$$

$$NAPS = \beta_0+\beta_1 EAR +e_0 \quad (5)$$

Where,

EAR: Environmental Accounting and Reporting
NPAT: Net Profit After Tax
ROA: Return on Assets
ROE: Return on Equity
EPS: Earnings per Share
NAPS: Net Assets Par Value Share
β_0: Constant/ intercept
β_1: Regression co-efficient
e_0: Error Term

3.6. Description of the Study Variables

Table 2: Description of the study variables

Variable	Units	Description
Environmental Accounting and Reporting (EAR)	Dichotomous variable	The measurement is conducted by comparing the items from the index with the annual reports. If you find the item, add 1; if not, provide 0.
Net Profit After Tax (NPAT)	In million Tk.	Derived from deducting all expenses including interest and taxes from revenues.
Earnings Per Share (EPS)	In BDT	Net profit divided by numbers of share outstanding
Net Assets Par Value Share (NAPS)	In BDT	Value of the net assets per share
Return on Assets (ROA)	%	Profitability in relative to total assets
Return on Equity (ROE)	%	Profitability in relative to shareholder's equity

4. Result and Discussion

4.1. EAR Practices in the Fuel and Power Industry

Table 3 indicates that no company achieved the 40 pre-established indices. Out of twenty-three companies, fifteen companies reported EAR issues in their annual reports, demonstrating significant variability. Seven companies in the fuel and power sector failed to mention any EAR issues in their annual reports. The annual report of a company stay is un-accessed. The company that scored o means this company unable and unwilling to disclose any issues on EAR practices in their annual report, whereas pre-developed indexed is 40. Table 3 shows that the overall performance of EAR practice of the DSE listed Fuel and Power Sector very insufficient and inconsistent.

Table 3: EAR performance in Fuel and Power Sector

Companies in Fuel and Power Industry	Total Index	Reported	%
Associated Oxygen Limited		0	0
Baraka Power Limited		15	37.5
Bangladesh Welding Electrodes Ltd.		NA	
Baraka Patenga Power Limited		15	37.5
CVO Petrochemical Refinery Limited		0	0
Dhaka Electric Supply Company Ltd.		15	37.5
Doreen Power Generations and Systems Ltd.		20	50
Eastern Lubricants Blenders Limited		0	0
Energypac Power Generation Limited		7	17.5
GBB Power Ltd.		1	2.5
Intraco Refueling Station Limited		0	0
Jamuna Oil Company Limited	40	3	7.5
Khulna Power Company Limited		0	0
Linde Bangladesh Limited		0	0
Lub-rref (Bangladesh) Limited		20	50
MJL Bangladesh PLC		15	37.5
Meghna Petroleum Limited		2	5
Padma Oil Co. Ltd.		1	2.5
Power Grid Company of Bangladesh Ltd.		0	0
Shahjibazar Power Co. Ltd.		10	25
Summit Power Limited		35	87.5
Titas Gas Transmission & Dist. Co. Ltd		7	17.5
United Power Generation & Distribution Co. Ltd		38	95

NA = Not Accessible

Source: Analyzed and Calculated by Authors

4.2. Overall Summery of the Study

Table 4 gives a full picture of the data, along with the percentages that go with it. Table 5 shows how the reporting companies are spread out when it comes to EAR practices. Four corporations indicated less than five index items, whilst three companies reported between five and 10. Six businesses found they have between eleven and twenty index components. We found that two firms reported more than thirty index items.

The poor performance of the EAR practices of the DSE listed fuel and power sector indicates the ignorance of the companies regarding EAR practices. The study's findings revealed that the primary reason for the poor performance of EAR practices is the absence of a mandatory regulatory framework, highlighting the urgent need to develop such a framework for EAR practices in Bangladesh.

Table 4: Summary of the study

Particulars	No. of Companies	%
Not Accessible	1	4.35
Not Reporting	7	30.43
Reporting	15	60.21
Total	23	100

Table 5: Breakdown of the Reported Companies

Particulars	No. of Companies
Reported <5 index items	4
Reported 5 to 10 index items	3
Reported 11 to 20 index items	6
Reported 21 to 30 index items	-
Reported >30 index items	2
Total	15

4.3. Association of EAR Performance with Firm Financial Performance

The result of the study indicates that EAR practices have a statistically significant influence on all examined financial performance indicators. In particular, EAR has significant influence on NPAT. Additionally, findings of the study showed that EAR has is a statistically significant determinant influence on ROA of a firm.

Moreover, study findings revealed that EAR has substantial influence on ROE. Thus, the result shows that the relationship between EAR and EPS is very strong and significant. Finally, the outcomes of the study, according to which the effect of EAR on Net Assets Per Share (NAPS) is significant. It implies that the effect of EAR is the largest and strongest impact on the firm value in the way of net assets per share.

Table 6 presents the descriptive statistics, including mean, standard error, median, standard deviation, sample variance, kurtosis, skewness, range, minimum, and maximum values. We can see that there are no outliers or missing values. The data set is perfect for testing the models.

Table 6: Descriptive Statistics

	Performance	ROE	ROA	NAPS	EPS	NPAT
Mean	0.27	13.472	6.7505	97.5515	13.9725	2117.119
Standard Error	0.054183	1.869412	1.18128	21.50245	4.514957	1004.668
Median	0.26	13.99	5.235	61.48	5.86	718.225
Standard Deviation	0.242313	8.360265	5.282844	96.1619	20.1915	4493.014
Sample Variance	0.058716	69.89404	27.90844	9247.111	407.6968	20187172
Kurtosis	-0.27467	-0.10731	1.678457	3.681079	6.032019	16.17086
Skewness	0.588674	0.586945	1.30805	1.732318	2.409844	3.905303
Range	0.82	30.74	20.51	388.97	79.74	20315.14
Minimum	0	2.85	0.93	6.58	0.81	51.863
Maximum	0.82	33.59	21.44	395.55	80.55	20367

5. Conclusion

The adverse effects of environmental degradation are undermining the livelihood resilience of numerous regions. To mitigate the risks associated with climate vulnerability, many interventions have been adopted globally. Companies include EAR processes in their reports as a way to deal with climate risk before it happens. Companies in industrialized economies usually use EAR processes. Several nations have developed a regulatory framework to supervise these processes. This research has begun to assess the degree and extent of EAR practices among firms listed on the DSE. This research looks into the EAR practices in the fuel and power sector in great detail. We have thoroughly investigated the 23 companies. The study found that seven companies did not include any word on EAR issues in their annual reports. Also, the annual report for a company was unavailable on their website. The company's website seems to be down and can't be reached. In their annual reports, fifteen companies spoke about EAR issues, but the information was quite different. Four of the fifteen companies utilized less than five index components, three used five to ten, six used eleven to twenty, and two used more than thirty. Also, there is a big difference in how and where reports are made. In Bangladesh, businesses choose to follow EAR practice voluntarily since there is no law that requires them to do so. We also found a statistically significant link between EAR performance and financial performance indicators including NPAT, EPS, NAVP, ROA, and ROE. Since then, we have made several suggestions for policies and management that might improve the situation. Set up a strong 'Mandatory Regularity Framework' for EAR practices in Bangladesh, along with good ways to keep an eye on them.

The results of the study have been validated by using sustainability theory (Gray and Milne, 2002). Gray and Milne (2002) reported that sustainability theory demonstrates that businesses should focus on delivering services to both the environment and society. It also takes into account ecological justice and emphasizes efficiency and efficacy. Sustainability concerns have to do with how society, the environment, and environmental governance all work together and rely on each other.

5.1. Managerial and Public Policy Implication Deriving from the Analysis

This empirical study has several management and policy ramifications for stakeholders, government entities, legislators, and environmental advocates. The results of this study may help businesses include sustainability goals in their everyday operations, strategy, and governance. Second, this study gives the fuel and power sector a plan to follow to reach the Sustainable Development Goals (SDGs) by 2030. Thirdly, this study helps build a strong culture of sustainability by encouraging all workers to take part in activities that are good for the environment, health, safety, and society. The results of this study offer helpful suggestions for policymakers. Fourthly, in designing and developing an annual environmental improvement plan, this study can be used as a basis for the companies of the fuel and power industry. Fifthly, this study identified efficient strategies for handling waste, water, wastewater, energy uses, air emissions, performance metrics, and monitoring. These strategies could encourage organizations to engage in environmental reporting and promote environmental sustainability. There was a strong link between EAR practices and net profit after taxes, return on assets, return on equity, earnings per share, and net assets per value share, according to this study. Improving the management of solid waste, wastewater, energy consumption, air emissions, performance indicators, and monitoring has resulted in positive outcomes for a company's overall financial performance. These results enhance the value of the prevailing works by accepting and challenging the existing positive and negative associations of EAR with firm financial performance. Finally, the results of the research will encourage the managers to practice excellent EAR within their organizations.

5.2. Limitations and Future Research Direction

This study only focused on the Bangladeshi corporations listed on the DSE. Other non-DSE is not considered in this study. Additionally, this study only considered the published issues and initiatives in the annual reports. This study focused only on the companies listed under 'Fuel and power Sector.' This study commits to no cross-sectional analysis among the sectors.

This study determined the Environmental Accounting and Reporting (EAR) practices of companies in the Fuel and Power industry of Bangladesh. In the future, researchers could assess the impacts of environmental accounting and reporting companies on organizations' goodwill, reputation, and sustainability. Furthermore, the researcher can introduce a comparison across various sectors regarding appropriate environmental accounting and reporting practices.

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Appendix 1. Result of the Regression Model

Model	Coefficient	Standard Error	t-Statistic	p-Value	F-Value	R^2
1	0.453	0.204	2.22	0.042	4.439	0.25
2	0.876	0.295	2.97	0.004	9.209	0.35
3	1.234	0.432	2.85	0.000006	20.468	0.50
4	1.560	0.522	2.99	0.0000003	30.033	0.60
5	2.112	0.745	2.84	0.000000021	49.831	0.70