DETERMINANTS AND CONSEQUENCES OF ENVIRONMENTAL DISCLOSURE PRACTICES OF LISTED MANUFACTURING COMPANIES IN SRI LANKA

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INTRODUCTION

Environmental Disclosure (ED) involves a company publicly disclosing its environmental impact and control measures to stakeholders, including consumers and shareholders (Rajapakse 2003). It demonstrates an organization's commitment to environmental governance, management, and strategy. Environmental information disclosure has gained importance in recent decades, with stakeholders demanding more information on the environmental impacts of businesses. Traditional firms prioritize financial results, however, non-financial success is crucial for survival (Ahmadi & Bouri, 2017). Businesses are increasingly disclosing their Corporate Social Responsibility (CSR) initiatives and environmental impact in their annual reports and publications.

Since the industrial revolution, the environment has been negatively impacted by rapidly developing technologies, resource use, and climate change. Environmental contamination is caused by technical tools, processes, and equipment. Businesses must demonstrate their environmental concern and contribute to the environment through annual reports and media, ensuring stakeholders are informed about their sustainability progress. Corporate environmental disclosure is crucial for investors, policymakers, and the public as it affects capital markets and provides information on environmental performance. Several authors have done separate studies examine the determinants of environmental disclosure practices (Nuskiya et al., 2021; Akhter et al., 2022) and examined the consequences of environmental disclosure practices (Jariya, 2015; Nimanthi & Priyadarshanie, 2020). Longoni and Cagliano (2018) explored the impact of environmental disclosure practices on firm performance and the joint effects of inclusive environmental disclosure and green supply chain management practices.

Environmental disclosures may show a company's dedication to the environment in areas including environmental governance, environmental management, and management's environmental vision and plan. Manufacturing organizations can learn how to manage stakeholder views by looking at their environmental disclosures in annual reports. Calculating corporate environmental disclosure intensity can show how these businesses participate in sustainability-focused projects, which is in line with corporate environmental disclosure's revolutionary potential. Existing literature mainly focused on the determinants of environmental disclosure (Akhter et al., 2022; Nuskiya et al., 2021) and its consequences (Nimanthi & Priyadarshanie 2020; Acar & Temiz 2020; Longoni & Cagliano 2018) as separate studies. Further, in recent studies, they have collected evidence up to 2015 – 2018 (Nuskiya et al. 2021). Further, a dearth of studies was observed in local and international literature, with mixed findings. Therefore, the researcher was motivated to examine the determinants and consequences of environmental disclosure practices of listed manufacturing companies in Sri Lanka. This study offers fresh perspectives by combining these two features into a single study and taking into consideration several determinants and consequences of listed manufacturing companies in Sri Lanka.

METHODOLOGY

This analysis used information collected from 92 listed manufacturing companies in Sri Lanka that implemented an integrated reporting disclosure framework between 2019 and 2021 and gathered the data by following the secondary data collection method. The researcher selected a total of 92 manufacturing companies, including 48 companies related to the food, beverage, and tobacco industries, 24 listed companies related to the material industry, and 20 listed companies related to the capital goods industry, as the sample among the 20 industries listed on the Colombo Stock Exchange. Significant environmental disclosure factors include firm size, profitability, leverage ratio, and firm age. Their effects are assessed in terms of earnings per share, Tobin's Q, return on equity, and return on assets. The researcher built this operationalization by using previous studies (Akhter et al., 2022, Nimanthi & Priyadarshanie, 2020). The operationalization of the variables is shown in Table 1.

Table 1

Operationalization Table

Variables	Measurement	Extent Literature
Environmental Disclosure Index (EDI_{it})	Measured by a comprehensive scorecard	(Uwuigbe & Jimoh, 2012 ; Akhter et al., 2022)
Panel A (Independent Variables)		
Firm Size (FZ_{it})	Log of total assets at the end of the year	(Akhter et al. 2022)
Profitability (*Profit*)	Net Income / Shareholders Equity (ROE)	(Akhter et al. 2022)
Age of the Firm (AG_{it})	Number of years since its inception in DSE	(Akhter et al. 2022)
Leverage Ratio ($LEVR_{it}$)	(Total debt/Total equity) *100	(Akhter et al. 2022)
Panel B (Dependent Variables)		
Return on Assets (ROA_{it})	Net Income / Total Asset	(Nimanthi & Priyadarshanie, 2020)
Return on Equity (ROE_{it})	Net Income / Shareholders Equity	(Nimanthi & Priyadarshanie, 2020)
Earnings Per Share (EPS_{it})	Profit or loss attributable to equity holders/ Weighted Average No of Ordinary Shares	(Nimanthi & Priyadarshanie, 2020)
Tobin's Q ratio (TOB_{it})	Market Value of Firm / Book value of firm	(Nimanthi & Priyadarshanie, 2020)

The findings of the descriptive, correlation, and panel regression analyses were used by the authors to arrive at conclusions. The following hypotheses were formulated considering the limited literature on environmental disclosures. These are raised concerning the Listed Manufacturing Companies in Sri Lanka (Akhter et al. 2022; Rajapakse 2003; Jariya 2015; Alipour et al. 2019).

H_1 - The impact of firm size on environmental disclosure is significant.

H_2 - The impact of profitability on environmental disclosure is significant.

H_3 - The impact of the age of the firm on environmental disclosure is significant.

H_4 - The impact of the leverage ratio on environmental disclosure is significant.

H_5 - The impact of environmental disclosure on ROA is significant.

H_6 - The impact of environmental disclosure on ROE is significant.

H_7 - The impact of environmental disclosure on EPS is significant.

H_8 - The impact of environmental disclosure on Tobin's Q is significant.

According to the researcher's hypotheses, five models were created as a result to investigate the determinants and consequences of environmental disclosure practices.

Determinants of Environmental Disclosure Practices

Based on the existing literature Firm Size (FZ_{it}), Profitability ($PROF_{it}$), Firm Age (AG_{it}), and Leverage ($LEVR_{it}$) are recognized as determinants of environmental disclosures and the model is formulated as below (Brammer & Pavelin, 2008: Jariya, 2015: Chowdhury et al., 2020; Ellis 2001; Islam et al. 2015; Al Arussi et al. 2009)

$$EDI_{it} = β_0 + β_1 FZ_{it} + β_2 PROF_{it} + β_3 AG_{it} + β_4 LEVR_{it} + \sum ……… Model\ I$$

Consequences of Environmental Disclosure

The consequences of environmental disclosure are mainly identified as market and non-market consequences. Accordingly, return on assets (ROA_{it}), return on equity (ROE_{it}), earning per share (EPS_{it}), and Tobin's Q ratio (TOB_{it}) are identified as the main consequences of environmental disclosures. Further firm size (FZ_{it}), firm age (AG_{it}), and leverage ratio ($LEVR_{it}$) are introduced to the models as control variables.

$$ROA_{it} = β_0 + β_1 EDI_{it} + β_2 FZ_{it} + β_3 AG_{it} + β_4 LEVR_{it} + \sum ……... Model\ II$$

$$ROE_{it} = β_0 + β_1 EDI_{it} + β_2 FZ_{it} + β_3 AG_{it} + β_4 LEVR_{it} + \sum ……... Model\ III$$

$$EPS_{it} = β_0 + β_1 EDI_{it} + β_2 FZ_{it} + β_3 AG_{it} + β_4 LEVR_{it} + \sum ……... Model\ IV$$

$$TOB_{it} = β_0 + β_1 EDI_{it} + β_2 FZ_{it} + β_3 AG_{it} + β_4 LEVR_{it} + \sum ……... Model\ V$$

Where; EDI_{it} = Environmental Disclosure Index

To calculate this environmental disclosure index (EDI) researcher used nine (09) environmental disclosure items. There are, Renewable Energy & Investment Disclosure, Tree plantation & forestry-related disclosure, Waste management disclosures, Land & air pollution-related disclosures, Water pollution and Control related disclosures, Green Policy related disclosures, Energy savings and improvement disclosures, Consumer Awareness related to the environment, and Ecological and carbon Management Policies.

For this aim, the environmental disclosure practices content of each company's annual report was thoroughly studied and analyzed. The environmental disclosure score was then computed as a percentage of the highest possible score, as shown below:

$$EDI = \frac{Total\ score\ of\ the\ individual\ company}{Maximum\ score\ obtainable} \times 100$$

RESULT AND DISCUSSION

The main analytical method used was panel regression analysis, and the results confirmed the hypotheses on the significance of firm size and leverage ratio (p<0.05) as determinants of environmental disclosure. Further, ROA and ROE were the significant consequences while EPS and Tobin's Q ratio were not significant.

Table 2

Model I Regression Analysis

Dependent – EDI	Coef.	Std. Err.
$PROB_{it}$	-0.041	0.025
FZ_{it}	0.007**	0.012
AGF_{it}	-0.001	0.001
$LEVR_{it}$	0.000***	0
Industry Dummies Included		
Year Dummies Included		
Cons	0.4119	
R-sq.	0.0217	
F	33.88***	
n	297	
Hausman Test	1.62	

Note: (P<0.01***, p<0.05**)

Table 3

Models II, III Regression Analysis

Model II			Model III		
Dependent – ROA_{it}			Dependent – ROE_{it}		
ROA_{it}	Coef.	Std. Err.	ROE_{it}	Coef.	Std. Err
EDI_{it}	2.384**	1.838	EDI_{it}	2.280**	3.6
FZ_{it}	0.202	0.395	FZ_{it}	0.019	0.775
AGF_{it}	0.057	0.035	AGF_{it}	0.101	0.067
$LEVR_{it}$	0.013	0.012	$LEVR_{it}$	0.008	0.025
Industry Dummies Included			Industry Dummies Included		
Year Dummies Included			Year Dummies Included		
R-sq.	0.1499		R-sq.	0.1163	
F	57.51***		F	41.82***	
n	297		n	297	
Con	1.275		Con	5.422	
Hausman Test	3.43		Hausman Test	4.75	

Note: (P<0.01***, p<0.05**)   *Note*: (P<0.01***, p<0.05**)

Table 4

Models IV and V Regression Analysis

Model IV			Model V		
Dependent – EPS_{it}			Dependent – TOB_{it}		
EPS_{it}	Coef.	Std. Err.	TOB_{it}	Coef.	Std. Err.
EDI_{it}	0.14	6.331	EDI_{it}	-0.29	0.435
FZ_{it}	-0.057	1.363	FZ_{it}	-0.152	0.094
AGF_{it}	0.224	0.12	AGF_{it}	0.002	0.008
$LEVR_{it}$	0.016	0.042	$LEVR_{it}$	0.001	0.003
Industry Dummies Included			Industry Dummies Included		
Year Dummies Included			Year Dummies Included		
R-sq.	0.0686		R-sq.	0.0469	
F	18.03		F	15.44	
n	297		n	297	
Cons	0.613		Cons	2.255	
Hausman Test	0.79		Hausman Test	8.29	

Table 2 shows the results of the panel regression (model I), where the fixed effect model is considered [i.e. due to the significant ($p < 0.05$) result of the Hausman test performed]. The R-squared value was 0.0217 and a significant F value of 33.88 was observed. The findings of this study support H_1 and H_4. This result is consistent with findings of other previous studies (Juhmani 2014; Brammer and Pavelin 2008; Sameera and Weerathunga 2013; Akhter et al. 2022) and other H_2 and H_3 analyses produced insignificant results on EDI_{it} (Akhter et al. 2022).

The random effect models were executed for Models II, III, IV, and V [i.e. due to the insignificant results ($p < 0.05$) of Hausman tests]. These models were established to examine the impact of EDI_{it} on ROA_{it}, ROE_{it}, $EPS_{it,}$ and TOB_{it} and the results indicate that EDI_{it} on ROA_{it} and ROE_{it} (H_5 & H_6) a significant result (Table 3) (Nimanthi and Priyadarshanie 2020). Models IV and V were used to examine the impact of EDI_{it} on EPS_{it} and TOB_{it}, respectively (Table 4), which represent the market performance measurements of a firm. Both models are unable to confirm significant results, and accordingly, study results do not support H_7 and H_8 (Nimanthi and Priyadarshanie 2020; Acar and Temiz 2020; Longoni and Cagliano 2018).

Researchers' findings convey an important message to policymakers, regulators, other practitioners, and other nations: businesses can utilize this reporting paradigm to signal that markets and non-markets have an economic impact on how markets perform. Accordingly, this study provides substantive new evidence that extends the Sri Lankan Environmental Disclosure literature.

CONCLUSION AND IMPLICATIONS

According to the environmental disclosures, almost 50% of the sample companies make environmental disclosures in the form of narrative, qualitative, or monetary data. Over the past three years, these percentages have stayed the same. The survey found that the rate of listed institutions not practicing environmental reporting had been stable over time. To encourage these non-compliant businesses to speed up their environmental activities and green plans and enhance environmental reporting, the regulatory authorities of the nation's industrial institutions may issue institutional standards. To increase the level of business commitment to

environmental conservation, the government and regulatory agencies may take into account enhancing the benefits of compliance with the Green Law through market-based incentives. The last significant empirical inference of the study addresses the empirical dearth of studies that jointly assess both the determinants and the consequences in a single setting.

Keywords: Corporate social responsibility, determinants, and consequences, environmental disclosure, green supply chain management, integrated reporting

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