AN EMPIRICAL STUDY OF LIAISON BETWEEN CORPORATE ENVIRONMENTAL DISCLOSURE AND ITS FINANCIAL PERFORMANCE

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Abstract- The aim of the entire study is to examine the effect of company's financial performance on the extent of corporate environmental disclosure and the financial performance has been measured by return on asset (ROA), return on equity (ROE), net profit and operating profit. The sample of study has been taken 100 large companies from the manufacturing sector and also listed in the Bombay stock exchange (BSE) and the period of study has been taken from 2012-13 to 2016-17. The statistical techniques which have been employed in order to achieve the objective are descriptive statistics, coefficient of correlation and multiple regression analysis. In this study, we have set up different hypothesis and these hypotheses have been proved with the help of above mentioned tools. After applying the statistical techniques, we have found that to some extent the corporate environmental disclosure has been depending upon the financial performance of the company. Some financial performance variables like ROA, ROE, net profit and operating profit are significantly associated with corporate environmental disclosure and some are not significantly associated. We have also made the association between corporate environmental disclosure and financial performance regarding Indian companies and MNC's companies and found that in case of Indian companies in some cases corporate environmental disclosure depends upon the financial performance of the company while in other cases it doesn't but in case of MNC's companies no association exists between corporate environmental disclosure and financial performance.

Keywords- Financial performance, ROA, ROE, operating profit, net profit, corporate environmental disclosure.

1. Introduction

With the passage of time, environmental disclosure has gained importance and firms have started to contribute material related to the environmental significance of their activities and there has been a developing movement in environmental disclosure (ACCA, 2004; Jones et al, 2005; Sumiani et al, 2007). The term environmental disclosure indicates to the formation of material by management for the need of various stakeholder troops on the environmental conditions and conduct of their firms or organizations (ACCA Malaysia, 2002). Each stakeholder of a firm intention to acquire legitimate and true material both of a monetary and of a non-monetary type and firms should detail their monetary statements as per to the fairness and clarity conventions. Companies must have an intention to fulfil the all kind of long period interests of their stakeholders (Cowen, 1987; Wokutch et al, 1987).

Currently, investors are considering at barometers that contribute material about the sustainability constituents of businesses (Neely, 2007). Sustainability book keeping is robustly corresponding with the conventions of sustainable development. New assumptions present the perception that the accounting measures should not have an effect on the sustainability development of the entity relatively they should influence the convention of profit expansion (Wilson, 2003). Therefore, in the long run the sustainability technique should be entrenched (Wang et al, 2008) and it should be a merger of environmental, social and financial aspects as all are inter correspond (Elkington, 1997). The environmental and social barometers can add qualitative amount to a firm and therefore affect the financial conduct (Horvathova, 2010).

2. Literature review

In the prior studies, mixed results have been produced regarding the association between corporate environmental disclosure and the company's financial performance. Some of the studies where we have found that a positive and significant correlation exists between the environmental disclosure and financial performance like Hair et al (1998), have taken probably polluting publicly listed firms in Singapore as the sample of study and has taken two variables return on asset (ROA) and return on equity (ROE) in order to analyze the association between the environmental disclosure and the selected variables. They have found that companies that show environmental disclosure reporting have good financial performance as compared to those that do not shows corporate environmental reporting. In extension, Stanwick and Stanwick (2000), analyzed US companies and the ROA has been taken their performance intermediary and they have made the conclusion that high performance companies had greater disclosure of environment related policies and responsibilities as compared to bad performing companies. Apart from that, Gozali et al (2002), studied annual reports of Australian firms and have found that firms that disclose positive environment related material function undoubtedly exceptional in the market as compared to the firms that disclosed negative environment related material.

In contradiction to the above study, we have found that there were some studies where no correlation or association exists between the environmental disclosure level and financial performance like Ruslaina et al (2005), analyzed the Malaysia's listed firms and found that no association exists between corporate environmental reporting and shareholder's wealth. According to Connelly and Limpaphayom et al (2004), examined 200 public firms in Thailand as the sample of study by applying the porter hypothesis to analyze the association between environmental disclosure and company's financial performance and have failed to find an association between company's environmental performance and financial performance. Given the uncertain outcomes found, this research aims to study the liaison between corporate environment disclosure and company's financial performance, especially focusing on the Indian companies and multinational companies.

3. Research objective

- To analyze the effect of company's financial performance (as measured by ROA, ROE, net profit and operating profit) on the amount or level of corporate environmental disclosure.

4. Research methodology

- **Sample of the study**

In this study, the sample has been taken 100 large companies from the manufacturing sector the selected companies are listed in the Bombay stock exchange (BSE-500) also. The period of study is five years ranging from 2012-13 to 2016-17.

- **Measurement of variables**

  - **Dependent variable-** It is a variable whose value depends upon independent variable. In this case dependent variable is corporate environmental disclosure (CED). The evaluation of dependent variable as shown in table as below:

Table 1- Evaluation of dependent variable

Dependent variable	Measurement
Environmental disclosure	Total number of words in the annual reports regarding environmental matters.

  - **Independent variable-** It is a variable that stands alone and is not changed by the other variables. The independent variable have been determined on the basis of their intellectual importance in defining environmental disclosure practices of the firms and on the basis of prior literature examining the association between company aspects and the amount of environmental disclosure. It includes- ROA, ROE, operating profit and net profit. The evaluation of independent variables is depicted in table as below:

Table 2- Evaluation of independent variable

Independent variable	Measurement
Return on asset (ROA)	It is calculated as net profit/total assets
Return on equity (ROE)	It is calculated as net profit/shareholder's equity
Net profit	It is calculated as net profit/total revenue
Operating profit	It is calculated as operating income/total income

- **Hypotheses**

The following hypotheses have been set in order to analyze the association between corporate environmental disclosure level and company's financial performance.

Ho1: There is no association between ROA and the extent of environmental disclosure level.

Ha1: There is an association between ROA and the extent of environmental disclosure level.

Ho2: There is no linkage between ROE and the amount of environmental disclosure.

Ha2: There is a linkage between ROE and the amount of environmental disclosure.
Ho3: There is no liaison between net profit and the extent of environmental disclosure.

Ha3: There is a liaison between net profit and the extent of environmental disclosure.

Ho4: There is no relationship between operating profit and the amount of environmental disclosure.

Ha4: There is a relationship between operating profit and the amount of environmental disclosure.

Ho5: There is no association operating profit and the extent of environmental disclosure regarding Indian companies.

Ho5: There is an association operating profit and the extent of environmental disclosure regarding Indian companies.

Ho6: There is no liaison between net profit and the level of environmental disclosure regarding Indian companies.

Ho6: There is a liaison between net profit and the level of environmental disclosure regarding Indian companies.

Ho7: There is no linkage between ROA and the amount of environmental disclosure regarding Indian companies.

Ho7: There is a linkage between ROA and the amount of environmental disclosure regarding Indian companies.

Ho8: There is no association between ROE and the extent of environmental disclosure level regarding Indian companies.

Ho8: There is an association between ROE and the extent of environmental disclosure level regarding Indian companies.

Ho9: There is no liaison between operating profit and the level of environmental disclosure regarding MNC's companies.

Ho9: There is a liaison between operating profit and the level of environmental disclosure regarding MNC's companies.

Ho10: There is no relationship between net profit and the amount of environmental disclosure regarding MNC's companies.

Ho10: There is a relationship between net profit and the amount of environmental disclosure regarding MNC's companies.

Ho11: There is no association between ROA and the corporate environmental disclosure level regarding MNC's companies.

Ho11: There is an association between ROA and the corporate environmental disclosure level regarding MNC's companies.

Ho12: There is no linkage between ROE and the corporate environmental disclosure level regarding MNC's companies.

Ho12: There is no linkage between ROE and the corporate environmental disclosure level regarding MNC's companies.

- **Statistical techniques**

In order to analyze the association between corporate environmental disclosure and the firm's financial performance various statistical tools have been applied like descriptive statistics, coefficient of correlation and multiple regression analysis. Now, multiple regression analysis is a pillar of statistical study because of its potential and resilience (Brant, 2007). Before planning the study, we also formulate the correlation matrix in order to identify that if there are any variables that are multi-collinear and that cannot be applied together in the study. In order to test the hypotheses regression analysis model has been used as the statistical technique.

Model specification

The multiple regression analysis models have been applied in order to assess the effect of environmental disclosure on company's financial performance. The model has been detailed as below:

ENVD= B0 + B1ROA + B2ROE + B3OP + B4NP + e

Where, ENVD- environmental disclosure
B0- constant
B1 to B4- coefficient of slope parameters
B1ROA- Returns on asset
B2ROE- Returns on equity
B3OP- Operating profit
B4NP- Net profit
e- Error term

5. Analysis and discussion of the data

The research analysis of the data has been presented in order of antecedence. Firstly, we described the descriptive statistics of the variables, secondly coefficient of correlation matrix and finally, the multiple regression analysis model.

Firstly: Descriptive statistics
The descriptive statistics of the selected variables as shown in the below table:

Table3- Descriptive statistics of CED, ROA, ROE, operating profit and net profit

Variables	Mean	Standard deviation	Minimum value	Maximum value
CED	8.83	5.12	1	21
Operating profit	16.39	17.69	1	133
Net profit	12.76	15.60	1	113
ROA	11.27	10.29	1	68
ROE	20.24	17.85	2	111

Source: Author's calculation via MS Excel

In the above table, shows the descriptive statistics outcomes for the dependent variables (corporate environmental disclosure) and independent variables (operating profit, net profit, ROA and ROE). As noticed, the mean of corporate environmental disclosure (CED) is 8.83 with a low standard deviation of 5.12 which recommend that from the sampled companies some firms disclose environmental related information while some are ignore this concept. The minimum and maximum values are 1 and 21 respectively. In extension, the mean for operating profit is 16.39 with a low standard deviation of 17.69 which signifies that 17.69% in corporate environmental disclosure by firms has been described by operating profit. The mean for net profit is 12.76 with a low standard deviation of 15.60 which signifies that 15.60%

in corporate environmental disclosure by companies has been analyzed by net profit. Furthermore, the mean values of ROA and ROE are 11.27 and 20.24 with low standard deviations are 10.29 and 17.85 respectively which implies that 10.29% and 17.85% in CED by companies have been analyzed by ROA and ROE respectively.

Secondly: Coefficient of correlation matrix

The Pearson's coefficient of correlation has been applied and the purpose of the correlation analysis is to examine the inter relationship between the selected dependent and independent variables and evaluating whether there is any multicollinearity complication exists in the research model or not (Annumeet et al 2019). The results of coefficient of correlation matrix are indicated in the below table:

Table 4: Coefficient of correlation matrix

Independent variables	Operating Income	Net profit	Return on asset (ROA)	Return on equity (ROE)
Operating Income	1			
Net profit	0.96	1		
Return on asset (ROA)	0.80	0.80	1	
Return on equity (ROE)	0.42	0.44	0.78	1

Source: Author's calculation via MS Excel

In the above table, it has been found that operating profit and net profit are highly correlated with each other and the value is 0.96, in case of other variables as operating profit and ROE, net profit and ROE and ROA and ROE are moderately related with each other and their values are 0.42, 0.44 and 0.78 respectively.

Thirdly: Multiple regression analysis

Finally, the multiple regression analysis models have been applied in order to examine the repercussion of financial performance on the amount or level of environmental disclosure. The results of an association between corporate environmental disclosure (CED) and operating profit and net profit have been shown in the below table:

Table 5: Association between CED and operating profit and net profit

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	8.81	0.78	11.27	2.44E-19
ROA	0.18	0.07	2.31	0.02*
ROE	-0.10	0.04	-2.20	0.02*

Note: Significant at 5%, Source: Author's calculation via MS Excel

In the above table no 5, it has been interpreted that the operating profit and net profit are not associated with corporate environmental disclosure as their p values are moderately high as 0.18 and 0.45 respectively which are greater than 0.05 (0.18>0.05) and (0.45>0.05). So the null hypothesis has been accepted in case of both the variables as operating profit (Ho4) and net profit (Ho3).

Next the outcomes of an association between corporate environmental disclosure (CED) and ROA and ROE have been shown in the below table no 6:

Table 6: Association between CED and ROA and ROE

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	7.69	0.70	10.97	1.07E-18
Operating profit	0.13	0.10	1.32	0.18
Net profit	-0.08	0.11	-0.74	0.45

Note: Significant at 5%*, Source: Author's calculation via MS Excel

In the table no 6, it has been found that ROA and ROE are significantly associated with environmental disclosure and their p values are 0.02 and 0.02 respectively which are statistically significant at 5% level (0.02<0.05) and (0.02<0.05). So in this case the null hypothesis has been rejected as ROA (Ho1) and ROE (Ho2).

Apart from the above study regarding relationship between corporate environmental disclosure and financial performance, we have also conducted this association in respect of Indian companies and MNC's. The results of the study have been shown in the below tables:

Table 7: Association between CED and financial performance regarding Indian companies

7a)

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	7.17	1.00	7.14	1.23E-09
Operating profit	0.28	0.17	1.67	0.09**
Net profit	-0.31	0.22	-1.37	0.17

Note: Significant at 5%* and 10%**, Source: Author's calculation via MS Excel

7b)

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	8.22	1.07	7.66	1.53E-10
ROA	0.18	0.16	1.17	0.24
ROE	-0.11	0.06	-1.67	0.09**

Note: Significant at 5%* and 10%**, Source: Author's calculation via MS Excel

In the above table no 7(a), it has been shown that in case of Indian companies the operating profit is significantly associated with corporate environmental disclosure and its p value is 0.09 which is less than 0.1 (0.09<0.1), so in this case the null hypothesis (Ho5) has been rejected. On the other side, the net profit is not associated with the level of environmental disclosure as its p value is 0.17 which is greater than 0.1 and not statistically significant (0.17>0.1), so in this case the null hypothesis (Ho6) has been accepted. In table no 7(b), the ROA is not associated with corporate environmental disclosure level and its p value is 0.24 which is again greater than 0.1 (0.24>0.1), so the null hypothesis (Ho7) has been accepted but the other variable ROE is significantly associated with the extent of environmental disclosure ad its p value is 0.09 which is less than 0.1 (0.09<0.1) and the null hypothesis (Ho8) has been rejected.

In the above tables we have discussed the association between corporate environmental disclosure and financial performance regarding Indian companies, now we will discuss this association in respect of MNC's companies and the outcomes of the study has shown in the below tables:

Table 8: Association between CED and financial performance regarding MNC's companies

8a)

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	9.40	1.06	8.80	4.65E-10
Operating profit	0.07	0.12	0.59	0.55
Net profit	-0.03	0.13	-0.25	0.79

Note: Significant at 5%* and 10%**, Source: Author's calculation via MS Excel

8b)

Variables	Coefficient	Standard error	t-statistics	P-value
Intercept	10.20	1.29	7.90	5.08E-09
ROA	0.12	0.09	1.27	0.21
ROE	-0.06	0.07	-0.88	0.38

Note: Significant at 5%* and 10%**, Source: Author's calculation via MS Excel

In the above table no 8(a), it has been shown that none of the operating profit and net profit variables are significantly associated with corporate environmental disclosure and their p values are 0.55 and 0.79 respectively which are greater than 0.05 and 0.1 and the null hypothesis (Ho9) (Ho10) in both the variables have been accepted.
In table no 8(b), it has been depicted that again the both variables ROA and ROE are not statistically significant with the extent of environmental disclosure level and their p values are 0.21 and 0.38 which are moderately high from significant level 0.05 and 0.1 so the null hypothesis in this case (Ho11) (Ho12) have been accepted.

6. Findings and conclusion

On the basis of 100 manufacturing companies listed in BSE-500 Index stock. It has been found that to some extent the corporate environmental disclosure (CED) has been dependent upon the financial performance of the firm. The financially sound companies disclosed more environment related information in their annual reports and sustainability report as compared to the low financially stable companies. The financial soundness of the companies have been examined on the basis of operating profit, net profit, return on asset (ROA) and return on equity (ROE). In this study, we have applied the descriptive statistics of the independent variables and it has been found that 17.69% corporate environmental disclosure has been described by operating profit, 15.60% by net profit, 10.29% by ROA and 17.85% described by ROE. We have also applied multiple regression analysis models and have made the conclusion that in case of association between corporate environmental disclosures (CED) and net profit and operating profit both the variables are not statistically significant with corporate environmental disclosures level on the other hand, the variables ROA and ROE both are statistically significant with the extent of environmental disclosure level.
In case of association between corporate environmental disclosure and financial performance regarding Indian companies operating profit and ROE are significant but net profit and ROA are not significantly associated with corporate environmental disclosures. Whereas, in case of MNC's companies all the selected variables are not statistically significant with the amount of environmental disclosure level. So at the end, it has been made the crux that in case of Indian companies, the hypothesis regarding the association between corporate environmental disclosure and financial performance has been accepted or rejected but on the other hand in case of MNC's the hypothesis has been accepted that there is no association exists between corporate environmental disclosures and financial performance.

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