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Environmental Initiatives, Environmental Cost and Financial Performance of Companies: Evidence from Indian Manufacturing Companies

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ABSTRACT

The main objective of the study is to examine the effect of environmental cost on financial performance of the company. Environmental cost accounting refers to the process of incorporating information on environmental costs into existing cost accounting structures, as well as detection and allocation of environmental costs that are already ingrained in the production and consumption of certain commodities or activities**.**In order to examine the effect of environmental cost on the financial performance of the company. the study is focused only on manufacturing companies in India. Total six companies are selected for the study which are located in Karnataka state as per purposive sampling technique. The study is based on the secondary data, the required data have been collected through annual report of the company, CMIE data base etc. Therefore, the study reveals that, a suitable environmental cost as well as a corporation's adherence to environmental standards may considerably and favorably effect financial performance.

Keywords: Environment, Cost, Finance, Performance, Manufacturing.

INTRODUCTION

The Earth's environment is a prosperous legacy gifted to us by our ancestors. It is wealthy enough to satisfy the need of everyone living in it. However, the greedy man exploits the abundant resources of the environment and the environment protection becomes a pressing issue in the present-day context. The developmental activities undertaken by the present civilization generates huge amount of wastage with potential constituents. The disposal of such wastes contributes towards the environmental pollution. Today, the magnitude of environmental pollution is at an alarming level in many parts of the globe. Well-known environmental tragedies like Mina Mata mercury poisoning in Japan (1956), Chernobyl nuclear-power plant disaster in Ukraine (1986), Love canal incident in US (1978) and the Bhopal gas tragedy (1984) reinforced the importance of environmental protection in the minds of people(Ahamedemujtaba et al., 2015). One of the most significant problems that the world is currently confronted with climate change. The shifts that occur in the climate of the entire planet over the course of time are what are known as climatic changes. This variation could be caused by dynamic processes on the planet as well as some of the influences from the outside world. Climate change is responsible for a multitude of issues, global warming, melting of glaciers, and problems with pollution, deforestation, biodiversity loss, soil erosion, and land degradation.The impact that humans have on the natural world is one of the primary reasons behind these challenges. One of the primary reasons for these kinds of issues is the irresponsible consumption of natural resources.The misuse of natural resources and environmentally harmful practices undertaken in the name of economic development are to blame for the current climate crisis.As a direct consequence of this, the negative impact that economic development has on the surrounding environment has emerged as a topic of worry for people all over the world in the recent few decades.

The topic was first brought had been the subject of multiple discussions at international summits. Two international conferences were conducted between the years 1968 and 1972 in order to evaluate the issues that were plaguing the global environment and to provide solutions. It is generally agreed that the current environmental movement may be traced back to the June 1972 Convention of the United Nations on Humanity and the Environment, or the Stockholm Conference as it is more well known.An international conference was held for the first time to discuss the political, social, and economic issues related to the state of the planet and to determine what, if any, action might be taken to improve the situation.The goal of the meeting was to discuss possible answers. The United Nations has also made an attempt in this direction by creating a centralized multi-purpose conceptual framework called the SEEA.

REVIEW OF LITERATURE AND RESEARCH GAP

Cleci Grzebieluckaset al (2012): the authors conducted quantitative research. The study of environmental accounting and environmental expenses, the researcher found, lags significantly behind the environmental concern. Since it is a variable that may provide a lasting competitive advantage, this indicates that it deserves greater study from both academics and corporations.

Mirela Camelia Baba (2012): The objective of this paper was to explain what environmental accounting is and what it does for a business. In Romania, the "Environmental Protection Expenses" account 652 keeps track of environmental taxes, the purchase of greenhouse gas emissions, and the contributions of entities to an environmental fund, among other things. A number of rules are put in place to keep environmental protection projects going and help them grow. Romanian Tax Code No. 571/2003, as both a tax that is paid and a tax that can be deducted. The findings demonstrate that by recognizing, detailing, and regulating expenditures and revenues connected to the environment, a management of an economic organization may discover actual methods to save money and enhance its public image.In addition to this, an empirical study was done on 10 businesses in the city of Brasov to find out how much they knew about environmental accounting and how they used it. These results highlighted the potential benefits and drawbacks of environmental accounting.

Emilia Vasilet al., (2012):A researcher made an effort to record the environmental management activities of economic entities based on how these activities are connected to the flow of materials and energy. And they think that environmental management accounting is not just one tool among many for managing interactions with the environment, but rather a collection of concepts and practices that are essential for the success of all actions in this sector of management by providing information about the consumption of materials and energy and the expenses involved.

Bassey Eyo Basse (2013): The questionnaire was the main way that the needed information was gathered, and it was made to make sure that all relevant information was gathered. Data from secondary sources come from places like the Internet, books, journals, library research, and government reports. In order to examine the information, we employed a statistic called Pearson's product-moment corelation analysis. They also discovered that environmentally responsible businesses that are open about their green initiatives had a significant competitive advantage.

Mohammad Delwar Hussain et al (2014): This research examines the connection between accounting and sustainability and poses critical concerns regarding how to assess environmental accounting initiatives and carbon trading schemes. The authors concluded that in order to move toward sustainable development, attention must be paid to issues such as environmental taxes, environmental costs, the valuation of ecosystem services, the pricing of carbon dioxide, the cost of water pollution, and the security of income.

Verma et al, (2014): The study determined whether it was essential to include such a provision in the Act by analyzing how corporations spend their money on CSR activities when they do it on their own. Thirty BSE Sensex firms from the years 2001 to 2012 make up the sample. Corporate social responsibility (CSR) expenditure was broken down by the proportion of annual sales and annual profits as well as by the number of firms that engage in CSR. In the research, CSR expenditures were shown to account for a negligible share of revenue and profits when they were undertaken voluntarily.The results also show that companies don't put a high priority on spending money to protect the environment and stop pollution. Even though the effects of CSR activities can't always be measured in terms of how money is spent, it is still one of the most important ways to see how engaged companies are with society. Based on what they found, the author also came to the conclusion that adding this rule is a good way for regulators to make corporations more socially responsible.

Sana Moid (2016)this study was how the corporate sector is considering and measures the cost and benefit of social and environmental accounting and how they can disclose environmental activities in the company’s books of accounts. The researcherfound in the study that there is no proper framework and guidelines for reporting environmental costs, environmental assets and, environmental liability and finally the researcher concludes that there is need for a specific guideline with regard to environmental accounting and reporting practices,

Oraka, et al. (2016): The study used Legitimacy Theory and Stakeholders Theory to evaluate financial statements of companies in Nigeria. Legitimacy Theory helps explain why companies choose to share information about the environment on their own, and Stakeholders Theory is more about how to meet the needs of stakeholders. This study is a descriptive study of consumer goods companies. 28 Nigerian stock market businesses are examined (NSE). The study used multiple regression, which compares dependent variables. Environmental disclosure affects Nigerian consumer goods manufacturers' Total Asset Turnover, Current Ratio, and Return on Equity. Environmental disclosure has little influence on Nigerian consumer goods manufacturers' Cash Flow Ratio and Return on Assets.

Alhasan Haladu et al., (2016): The economic performance of the company with regard to environmental disclosure in Nigeria. The research used a method known as random sampling to identify 67 different companies from the NSE market as its sample size. Researchers found that environmental reporting is positively and significantly related to the aggregate attributes of firm profitability, size, leverage, and market value; furthermore, profit and firm size demonstrate significant relationships with environmental reporting; however, leverage and market-to-book value ratio showed no significant relationships with environmental reporting.

Charles Emenike Ezeagba et al (2017): The researchers used an ex-post research methodology for their study, which included analyzing the material that had existed over the course of a few years. The information on environmental practices was acquired from the previous year's annual reports, and a content analysis was performed. The studies all agree that E.P.S. and ROE rise when companies disclose their environmental impact. This displays the correlation between environmental accounting disclosures, share price performance, and equity returns for selected companies. This was shown by the fact that there was a correlation between the three. Both the net profit margin and the return on capital employed were shown to be unrelated to environmental accounting disclosures. Thus, it seems that NPM and ROCE are heavily impacted by factors that are unrelated to the study at hand.

Utile Bem Joseph (2017): The researcher's overarching objectives in conducting this study were: To Examine(i) the impact on earnings of reporting on erosion control for Nigerian manufacturing firms, (ii) the impact on earnings of reporting on waste management for Nigerian manufacturing firms, and (iii) the impact on earnings of reporting on air pollution for Nigerian manufacturing firms. Ten manufacturing companies that are listed on the Nigerian Stock Exchange were selected at random to participate in the study's sample. The information that was gathered and utilised for this research came from the annual reports and financial statements that were made public by the industrial companies. In spite of arguments that can be found in the relevant literature which claim that Nigerian companies have been unable to adopt environmental reporting. The third point is that the reporting of air pollution has a favourable and considerable influence.

Fourthly, there is a large but inverse association between reporting on waste management and the financial success of companies. The study came to the conclusion that environmental regulatory agencies like the National Environmental Protection Agency should make sure that businesses report on their environmental performance in a consistent manner.

Ezhilarasi et al, (2017): The study was conducted with the intention of determining the variables that have an impact on the environmental disclosures made by businesses operating in India. The article begins by discussing the current state of environmental disclosure practices by constructing an Environmental Disclosure Index (EDI) that is based on the principles established by the Global Reporting Initiative (GRI). The descriptive analysis reveals a low level of environmental information disclosure, but the year-by-year performance reveals an improving trend, which suggests that businesses in India have become aware of the significance of environmental reporting. Using panel data regression model. It was discovered that crucial elements in explaining environmental disclosure policies include the size, the percentage of foreign ownership, and environmental certification. For the sake of improved sustainable development, developing nations such as India need to make it obligatory for businesses to provide information in their monthly reports pertaining to concerns relating to the environment.

Onipe Adabenege Yahaya (2018): The study's key objectives were to look at how environmentally responsible reporting affects a company's bottom line. The study used the green reporting index (gri), an index calculated from the tested firms' annual reports and accounts by means of content analysis based on the International Organization for standardizations(ISO14031)'s sixty disclosure items. If an item is included in the calculation of the green accounting index, it will get a score of one.This means that any of the companies that participated in the research had the potential to score anywhere between 0 and 60 points (Uwigbe, 2011). Therefore, a high value of the grid suggests high levels of environmentally friendly accounting or reporting. In conclusion, the research suggested that management of environmentally conscious businesses in Nigeria should continue and improve their green reporting since this practice demonstrates a favorable and substantial influence on financial performance.

Arshad Sedeeq Abdullah (2018): conduct an analysis of the connections that may be drawn between environmental disclosure and the economic success of a company. This research included responses from a questionnaire filled out by either the chief financial officer (CFO) or the chief accountant of each of the fifty local and international businesses situated in Erbil, Kurdistan Regional Government (KRG). According to the findings of the research, many businesses are not protecting the environment because there is a lack of stringent regulation and observation by the government and public institutions. The author predicts that, in the long run, the damage will be catastrophic for ecosystems, communities, and economies. In contrast to SA's, the study shows that EA has a favorable effect on profits.However, contrary to the researcher's expectations, the questionnaire results were entirely unexpected. To begin, most businesses declined to participate in the survey because they were concerned that providing responses might expose proprietary information.Second, the majority of them didn't even bother to answer the question because they said that because we are still regarded to be a developing region, we haven't yet arrived at the point where we care enough about society and the environment.

Kanaka Raju (2018)research found that preserving the environment has both positive and negative consequences. The incorporation of a green accounting system into national economic accounts may help in measuring sustainability and determining approaches to quantifying a wide range of environmental concerns.Theresearcher has gathered information from 150 people who filled out a structured questionnaire and from journals, magazines, and websites that already exist. The study found that the different parameters of green accounting and corporate sustainability could explain 20.6% of the differences in measuring how well the environment is doing. The researcher came to the conclusion that the different green accounting parameters only explained 1/5th of the performance of the environment. However, among the green accounting parameters, corporate sustainability was a better way to measure the performance of the environment.

Shetkar Sudesh Satyavan (2018):authors found how much it costs to protect the environment and how much money can be made from natural resourcesif any. The researcher uses both first-hand and second-hand information and dissemination of environmental information by businesses is influenced by the widespread use of environmental accounting, which has an effect on the value and image of the company. The researcher finally came to the conclusion that many government agencies have played a big part, based on what the study found. Still, GSPCB could have done a lot more to help protect the environment and promote sustainable development.

Oyedokun Godwin Emmanuel et al, (2019): This investigation heavily leaned on previously released secondary information on environmental accounting disclosure;the appropriate method for conducting this research. Eighteen (18) different firms from the Nigerian stock market were chosen by the researcher (NSE). The research found that the firm value of Nigerian manufacturers of industrial products was significantly impacted by non-financial performance measures but not by financial performance indicators. This research found these to be the most important results. The market value of Nigerian manufacturing firms is unaffected by key performance measures.

Zuriadah Ismail et al, (2020):authors collected the secondary data for this research and covered a period of 10 years, from 2014 to 2018. The information was gleaned from the yearly reports that were made public by oil businesses that were traded on the Iraqi stock market. In the end, 25 different businesses were selected to serve as examples. The methodology for the study includes both correlation and regression analysis, which may be performed several times. According to the results, Image and Relationship Costs and Contingent Environmental Costs do not significantly affect financial performance.

Hosam Alden Riyadh et al, (2020): The studyinvestigates the effect that green accounting (GA) has on a company's financial performance (FP). The companies that were chosen were the 100 biggest multinational enterprises in the world in the year 2018. Secondary sources of information, including CSR reports, sustainability reports, and financial records. According to the findings of this research, there is an inverse correlation between Green Accounting expenses and financial performance.

The Review of available literature reveals that existing studies have a great deal of research has been done already on corporate environmental accounting and reporting practices in India. However, these studies have not found an adequate number of empirical studies of environmental cost accounting on manufacturing companies. It has also been revealed that the huge number of published works on corporate environmental accounting procedures are confined only to the preservation of the environment, the management of environmental contamination, and the conservation of raw materials and energy.It was also discovered that the location of reporting is not consistent and that such data is only descriptive, with no information revealed concerning the financial consequences of the situation or the accounting standards governing the cost of the environment. Empirical investigations carried out in India have led researchers to the conclusion that disclosure of environmental accounting and reporting methods is almost nonexistent in the country. Therefore, there is a need to address this vacuum by conducting empirical research that looks at the corporate environmental accounting procedures and reporting in a group of industrial enterprises in specified regions.

Profitability has been used by corporate groups to rank their company performance. Without considering the environment, businesses have classified all indirect costs as overhead. The environmental accounting for the use of materials, water, energy, and other natural resources was not recognized by conventional accounting standards. Additionally, such reporting procedures and in particular accounting for environmental effect were not covered by traditional accounting. Since these traditional accounting techniques have neglected significant environmental costs and actions that have an influence on the repercussions on the environment, conventional approaches to cost accounting have become insufficient.therefore, the main objective of this research is to examine the effect of environmental cost accounting on performance of Indian manufacturing companies.

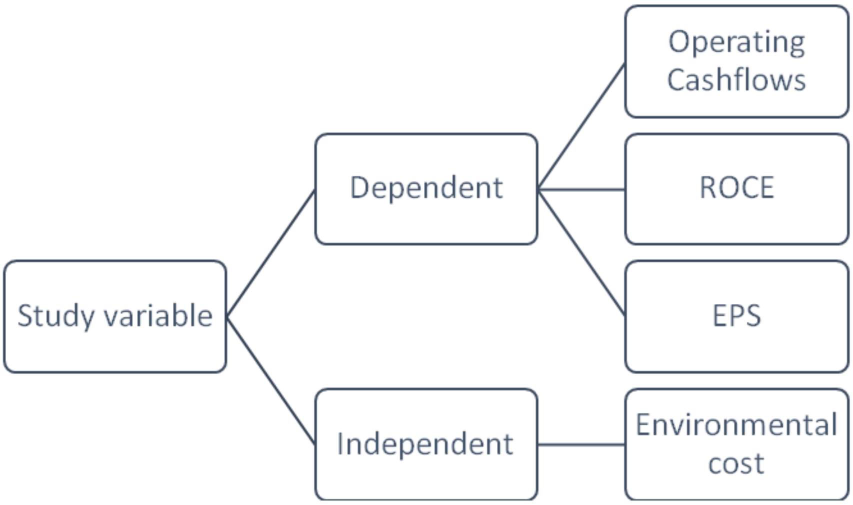
Based on the above research gap the researcher have formulated the following hypothesis;

H_0: There is no significant impact of environmental cost accosting on financial a performance of manufacturing companies in Indian.

H_1: There is a significant impact of environmental cost accosting on financial a performance of manufacturing companies in Indian.

MATERIAL AND METHODOLOGY:

Study variable: In order to examine the impact of environmental cost accounting on financial performance of manufacturing companies in India, the following dependent and independent variable have chosen in the study.



Environmental Cost: Environmental cost accounting refers to the process of incorporating information on environmental costs into existing cost accounting systems, as well as detection and allocation of environmental costs that are already entrenched in the production and consumption of certain commodities or activities. in this research the environmental cost has be calculated by using the following econometric model;

Environmental Cost, $\boldsymbol{Y = \alpha + \beta_1(EPS) + \beta_2(Operating\ Cash\ Flow) + \beta_3\ (ROCE) + \varepsilon_i}$

Sample Design:This empirical study confined to selected manufacturing companies in India which are located in Karnataka, because manufacturing companies are the major user of the natural resources as well as the polluter of the environment. as on 31-3-2019 of BSE report there were 86 manufacturing companies in India, out of which 7 manufacturing companies were selected based on size of the business by using purposive sampling technique. the selected sample companies are listed below;

Table-1: Sample companies selected for the study

Sl. No.	Name of the Company	Nature of the business	Code*
01	Disa India LTD	Manufacturing of Green and Moulding equipment	DIL
02	Quess Corporation Ltd	Manufacturing of Integrated facility management serviced	QCL
03	Hindustan Aeronautics limited	Manufacturing of Defense products	HAL
04	Mangalore Refinery and Petrochemical Limited	Manufacturing of petroleum products	MRPL

05	Bharat Earth Movers Ltd	Manufacturing of mining equipment and mine coaches	BEML
06	ABB Ltd	Manufacturing of high current rectifiers, switch gears and equipment for pollution control	ABB
07	Bharat Electronics Ltd	Manufacturing of defense and aerospace	BEL

Source: BSE Report as on 31-3-2019, *Code used for further reference in the paper

Data Collection & methods:This research makes use of secondary data over a period of five years, from 2017 to 2021 specifically. The information used in this study was undertaken from the annual reports of manufacturing businesses that are traded on the Bombay stock market. Using the approach of convenient sampling, samples of the firms were chosen for the purpose of researching the influence that environmental accounting has on the financial performance of the companies. In the end, seven different businesses were selected to serve as examples. The techniques of analysis that are covered in this part include correlation analysis and analysis of multiple regressions.

RESULTS AND DISCUSSION

Environmental accounting is essential for an organization that is attempting to put the concept of sustainable development into action because it makes it less. Because of this, environmental accounting is a crucial part of long-term growth that benefits every companies. Developing and maintaining sustainable business practices via quantitative operations geared at environmental preservation is an effective strategy. Simply said, businesses and other organizations can accurately account for the money they spend on environmental protection efforts as well as compile and evaluate the data linked to these investments and expenses, while carrying out environmental conservation activities. Not only can the business boost the effectiveness of its operations by gaining a deeper understanding of the possible returns on the investments. Hence, the researcher has studiedthe impact of environmental accounting on financial performances of seven manufacturing companies in Karnataka.

Table-2: Descriptive statistics table of Financial Ratios

Ratios*	DIL		QCL		HAL		MRPL		BEML		ABB		BEL	
	x̄	σ	x̄	σ	x̄	σ	x̄	σ	x̄	σ	x̄	σ	x̄	σ
Environmental cost	0.43	0.15	0.20	0.23	0.39	0.05	24.80	32.63	1.68	0.53	6.39	1.44	34.93	5.44
Income	206.14	34.43	126.77	78.96	20700.54	1725.82	47598.29	10945.79	3116.12	383.50	6999.12	1117.25	11814.54	2026.51
PAT	21.45	7.57	-15.00	53.08	12.97	1.49	650.33	2429.40	84.12	26.54	277.72	62.90	1746.55	272.34
PBT	30.53	9.12	51.57	226.69	18.73	0.75	2614.64	2436.38	101.98	52.03	411.68	106.25	2418.75	425.70
EPS	153.63	42.51	2.42	17.24	76.49	14.67	3.71	13.86	20.20	6.37	17.27	5.25	7.10	1.20
Working capital	112.01	36.08	2341.20	540.20	12533.84	1961.91	1571.71	1809.30	2373.04	343.96	2150.39	288.85	5553.44	906.57
o. cash flow	25.17	23.72	144.24	87.55	20000.50	1798.38	1171.23	2404.69	77.40	225.23	652.95	209.85	1649.65	2330.67
ROCE (%)	19.27	7.03	9.66	4.53	16.23	2.19	36.52	33.54	4.72	2.12	12.14	3.79	23.99	1.90

Sources: Secondary data (Annual reports)

Table-2 shows the 5 years average of environmental cost spend by selected manufacturing companies and financial ratios, the result of the descriptive statistics reveals that, the maximum environmental cost found in BEL company i.e., 34.93 crore rupees with a standard deviation of 5.44 percent, followed by MRPL company, which spent 24.80 crore rupees towards environmental activities with a standard deviation of 32.63 percent, the lowest amount of environmental cost is found in DIL Ltd i.e., 0.43 crore rupees and the financial ratios of the manufacturing companies is concerned, the highest amount of financial ratios are found in BEL, followed by MRPL but EPS is highest in DIL Ltd. i.e., 153.63 per share, followed by HAL i.e., 76.49 per share.

CORRELATION ANALYSIS

To examine the association between Environmental cost spending by the company and its Income, Profit after tax, Profit before tax, Earnings per share, working capital, operating cash flow and return on capital employed, correlation analysis has been carried out, which is presented in table-3;

Table-3: Correlation analysis between environmental cost and financial ratios

Parameters	DIL	QCL	HAL	MRPL	BEML	ABB	BEL
Environmental cost	1	1	1	1	1	1	1
Income	.850	-.537	.335	.708	.101	.990**	.854
PAT	1.000**	.789	.999**	1.000**	1.000**	1.000**	1.000**
PBT	.992**	.798	.719	.847	.635	.982**	.992**
EPS	-.956*	.876	.191	-.088	1.000**	.008	.995**
Working capital	.817	.394	.715	-.499	-.502	.230	.869
o. cash flow	.052	-.555	.321	.860	.074	.573	.909*
Roce (%)	.874	.258	.023	.771	.571	.904*	.450

****.** Correlation is significant at the 0.01 level (2-tailed).

***.** Correlation is significant at the 0.05 level (2-tailed).

Source: Author's calculations by using SPSS

From the above table it has been observed that, in most of the cases there is a positive correlation between environmental cost and financial parameters of the selected manufacturing companies except QCL Company and in maximum cases correlation is statistically significant at 0.01 and 0.05 level of significance. Hence, it can be concluded that, there is a significant association between environmental cost and financial performance of the companies. Since, there is a positive correlation between environmental cost and financial parameter of the companies, therefore, investment in environmental initiatives would increase the financial performance of the companies.

Testing of Hypothesis- Regression Analysis

Table No-4: Result of Regression

Variables	Coefficient	Standard Error	t- Statistics	Prob
Environmental Cost	-102.32	37.124	-2.756	.010
EPS	.4	1.093	.366	.717
Operating Cash flow	.002	.004	.470	.642
ROCE	8.248	1.978	4.169	.000
R Square	0.718	**F-statistics**		6.61043
Adjusted R Square	0.515	**Prob(F-statistics)**		.000
Std. Error of the Estimate	88.16			

Source: Author's calculations by using SPSS

From the model summary, it is evident that R=0.718 indicates a positive correlation between the EPS, Operating Cash Flow, and ROCE. The R^2 value indicates the contribution of independent variables on the dependent variable

Environmental Cost. The Analysis of Variance F- Value indicates that the regression model statistically predicts the outcome variable Environmental cost as the p-value is less than 0.05. Therefore, we can conclude that the relationship between EPS, Operating Cash Flow, and ROCE is significant. Out of three independent variables only ROCE is statistically significant as P-value is less than 0.05. Therefore, we can conclude that there is the impact of ROCE on Environmental cost significantly.

When we use the Coefficient Values from the model that was provided earlier, we find that Environmental Accounting, which is represented by Environmental Cost (ENVC), has a value of -102.32 when we hold all of the other variables constant. A change of one unit in environmental costs will result in an increase of about 0.4 units in EPS, a positive change of.002 and 8.248 in ROCE, and a positive change of approximately 0.4 units in operating cash flow.

The term "environmental costs" refers to all expenses that are incurred for the purpose of protecting the environment, such as the cost of treating emissions, as well as the cost of wasted material, capital, and labor that is referred to as "non product output" as a result of production activities that are inefficient. It is possible for various businesses to take various aspects into consideration when calculating environmental expenses; nonetheless, it is essential that all crucial and relevant charges be included in for the purpose of making smart decisions. The disclosure of environmental information in annual reports is typically more qualitative than quantitative. This is the case even though large companies are more likely than medium-sized businesses to report a greater amount of environmental information than the latter.

CONCLUSION

It is usual practice to use a company's financial performance over a certain amount of time as a barometer of the company's overall financial health. Many different metrics, like as a company's profitability, gauge return, market share, return on investment, return on equity, and liquidity, may be used to evaluate a business's overall financial success. The growth of sales, earnings, and EPS, as well as the amount of working capital, were used in this area to gauge financial performance. The return on operating cash flow and ROCE.

They came to the conclusion that a suitable environmental cost as well as a corporation's adherence to environmental standards may considerably and favorably effect financial performance. In the meanwhile, Pandey, Shri Narayan, and Kumar (2016) explored the link between environmental cost and financial performance using the measurements of EPS, P/E ratio, and ROCE. They discovered that there were no significant correlations between the variables in their investigation. The present research picks sales, profits, earnings per share, and working capital as the variables because, based on the literature studies on the link between environmental cost and financial performance, the current study selects the variables. Using operating cash flow and ROCE as a means of researching the connection between a company's environmental costs and its overall financial performance.

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