

# Effects of Green Technology on Firms' Profitability and Solvency: A Study on Textiles Industry of Bangladesh

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## ABSTRACT

In recent years there has been increasing advocacy regarding the perception that turning green is good for the corporation and thus for the whole economy. Green technology is nowadays a popular term in any industry but the stakeholders always ask a question of whether the company benefits from using green technology or is there any financial gain? This question remains unanswered in our country, and because of that new entities are not willing to adopt green technology especially in the textile sector. This paper shows that the companies using green technology having financial benefits than the companies not using green technology. In this paper, we used financial performance measurement techniques to find out companies' financial health. This study has taken data of 43 listed companies of Dhaka Stock Exchange. Then it divides the data into two groups, a group accustomed to green technology and a group not accustomed to green technology. Firstly, we used profitability ratios (ROS, ROA, ROE) to find out two groups of companies' position. Profitability ratios vary significantly from one group to another. Secondly, we used solvency ratios (Debt asset ratio and debt-equity ratio) and find result almost similar but the result changes with the passages of time through the payment of installment. So from the study, it can be said that profitability is positively related to the adoption of green technology. Thus, by studying this paper company will be keen to adopt green technology in their organization. This paper will also help existing companies to improve the existing technology.

**Key words:** Green Technology, Financial benefit, ROS, ROA, ROE, Debt asset, Debt equity, Environmental effects, Textiles Industry

## INTRODUCTION

Green technology can be defined as an umbrella term encompassing the investment asset class, technology and business sectors which include clean energy and environmental, sustainable or green products and services. It often includes activities such as water purification, eco-efficient production techniques, and renewable energy. Green Technology is the development and application of products, equipment and systems used to conserve the natural environment and resources, which minimize and reduces the negative impact of human activities (Bhardwaj and Neelam, 2015). Green inventions are environmentally friendly inventions that often involve: energy efficiency, recycling, safety and health concerns, renewable resources, and more. The world has a fixed amount of natural resources, some of which are

already depleted or ruined. For example, household batteries and electronics often contain dangerous chemicals that can pollute the groundwater after disposal, contaminating our soil and water with chemicals that cannot be removed from the drinking water supply and the food crops grown on contaminated soil. The risks to human health are great. Therefore, the need of the hour is that every investor should think green. They should know that green inventions and clean technologies are good business. These are fast-growing markets with growing profits. From the viewpoint of consumers, they should also know that buying green inventions can reduce their energy bills and that green inventions are often safer and healthier products (Banerjee and Akuli, 2014). Green technology helps to reduce adverse effects on the environment as well as improving productivity, efficiency and operational performance of the technology itself.



## Rationale of the Study

Today, more and more organizations, industries, and regulatory bodies look seriously about Green Technology, as it becomes imperative today. Environmental technologies use non-polluting practices to produce things and materials which are non-toxic. Green technology is environment-friendly rather than harm. We have come to a point, where we need to pause and reflect on the growing green technology importance and why it is going to be important for humanity. With plentiful reasons behind green technology importance, perhaps volumes can be written and spoken on the subject. Whether it is the growing importance of green technology in the industry or at homes, it is obvious that things need to be done fast. But in our country, we see the reluctance of using environmentally technology in our industry. It has happened because we don't know the financial benefit of eco-friendly technology. In this study, we will try to find out whether there is any financial advantage of using environment-friendly technology.

## Literature Review

Marchi (2012) defines Green innovation, which is also called environmental innovation or eco-innovation in literature, is defined as "new or modified processes, techniques, systems, and products to avoid or reduce environmental harm". Cainelli et al. (2015) argue Green process innovation is purposefully focused on the production process. Although it is novel to the focal firm, it can be exploited or applied to reduce environmental risk, pollution emission, and other negative impacts.

As economic entities, firms' managers and shareholders may pay more attention to their benefit when they devote to green innovation (Mitchell et al., 1997).

To capture different aspects of the benefits derived from green process innovation, the timeframe should be considered (Richard et al., 2009).

Clean or green technology is the improvement and application of equipment, systems, and products utilized to save the natural environment and resources which minimize and decrease the adverse effect of human activities (Bhardwaj and Neelam, 2015)

Increasing the cost of energy for unseen benefits is hard for corporations to see as favorable for their business (Menanteau, 2003).

Companies need to realize these unseen benefits, and become leaders in the clean energy movement. They need to look into the future and see the benefits these technologies can have not only on the environment, but on their business as well. Sustainable strategies are smart business strategies. Addressing environmental and sustainability issues give companies a sustainable competitive advantage and the benefits are quantifiable (Willard, 2012).

Instead of focusing mainly on environmental costs and risks, or corporate responsibility, more and more companies have come to see opportunities for growth and profit through a focus on environmental sustainability (Esty and Winston, 2006). The business world and the natural world are inevitably linked, and smart businesses are beginning to realize this. Companies that bring an environmental lens to their business strategy are generally more innovative and profitable than their competitors (Esty and Winston, 2006).

If the world continues to move in this direction, it will eventually destroy its natural support system. The long-term solution to this problem is to apply ecological principles of sustainable economic development (Brown and Mitchell, 1999).

However, after experiencing international ecological problems, countries came up with a variety of regulations to prevent further environmental degradation. After requirements became legitimate, organizations were forced to accept the responsibility to protect the surroundings they were operating in. Eventually, some of them realized that complying with environmental standards and following eco best practices can be beneficial to the organization as well. Thus, more and more companies started turning "green" not only to reduce pollution but also to increase profits (Hart, 1997).

The literature highlights several benefits that can arise from integrating environmental sustainability issues into product development and business operations: increased efficiency in the use of resources, return on investment, increased sales, and development of new markets, improved corporate image, product differentiation, and enhanced competitive advantage (Fraj-Andre's et al., 2009; Miles and Covin, 2000; Miles and Munilla, 1993; Dangelico and Pontrandolfo, 2015; Fraj-Andrés et al., 2009).

Chen et al. (2006) found that the performance of both green product and green process innovation is positively correlated to competitive advantage.

## METHODOLOGY

A quantitative approach is employed in this study to find the desired result from published data (Annual report). The study will be based on secondary data. The financial information of Forty three listed textiles entities of the Dhaka stock exchange has been used for economic analysis. From this forty- three listed companies, two groups have been created.

Group 1- Using green technology

Group 2- Not using green technology

This study compares data of these two groups for financial analysis.

**Sources of data collection**

While preparing this, Data will be taken from the following sources:

- Annual report of selected textile companies of Bangladesh
- Publications regarding environment-friendly activities of companies
- Different publications regarding eco-friendly technology from other sources

**Data analysis**

This analysis will be based on financial data mainly. We will be using five performance measurement tools those are ROS, ROA, ROE, debt–asset ratio and debt-equity ratio for analysis of data

**OBJECTIVES OF THE STUDY**

The broad objective of this study is to find out whether a company having a financial benefit from using green technology in the textile industry of Bangladesh. To accomplish this broad objective some Supportive objectives must be achieved and those are –

- Compare the net operating income of selected companies in the textile industry.
- Compare the return on investment and return on equity of selected companies of the textile industry.
- Analyze debt/equity and debt/assets ratio of selected companies of the textile industry.

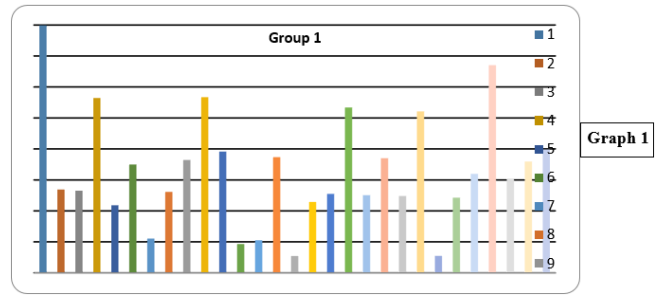
**SCOPE OF THE STUDY**

This study sought to find out whether companies who are using green-technology having any financial benefit compare to companies that are not using green technology. The focus of this study will be on the textile industries of Bangladesh. Specific emphasis will be given on listed textile companies of the Dhaka stock exchange. The scope of this study limited to forty-three DSE listed textile companies in Bangladesh. There are 55 listed textile companies in the Dhaka stock exchange. The data of 43 companies are found and used for analysis. No relevant data is found for the remaining 12 companies.

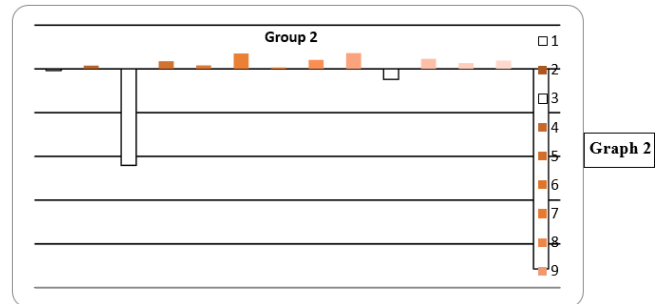
**DATA ANALYSIS AND FINDINGS**

**Return on Sales**

Return on sales is a ratio that is used to measure the operational efficiency of an organization. It measures the performance of the company by analyzing the portion of revenue converted into profit. Return on sales is useful for conducting trend analysis and compare efficiency over some time. ROS should be used within the same industry. In our analysis, we found the following results for Group 1 and Group 2.



Graph 1

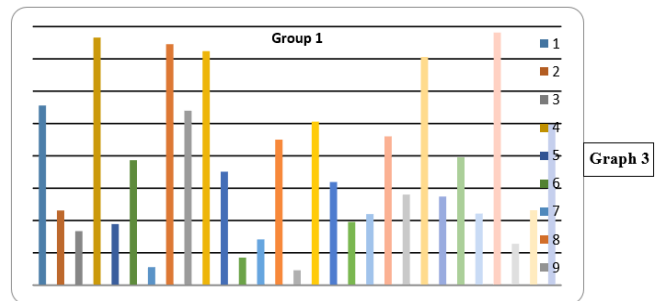


Graph 2

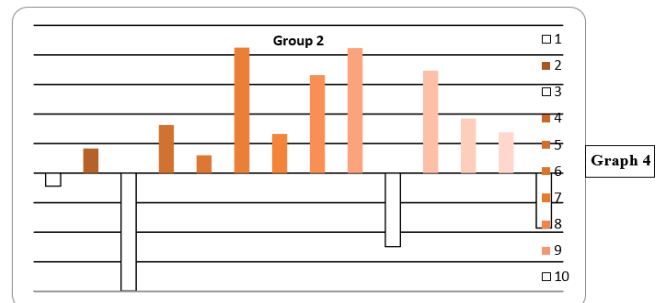
The highest return on sales for group 1 is 15.98% and the lowest return on sales for group 1 is 1.09%. On the other hand for group 2 the highest and lowest return on sales is 17.96% and -228.63% consecutively. As we can see all the companies under Group 1 have a positive income and steady revenue. But In the case of Group 2, only two companies have a positive income and the rest of the companies have a negative profit. So from the above information, we can conclude that group 1 has a higher return on sales compare to group 2.

**Return on Assets**

Return on assets is a performance measurement tool that is used to evaluate the efficiency of assets. ROA deals with the money you invest in the organization and the benefit you realize on that investment. ROA indicates how efficiently an organization using its resources to generate earnings. ROA can be used in different ways to gauge the profitability of the business. This study founds the following outcomes for these groups.



Graph 3

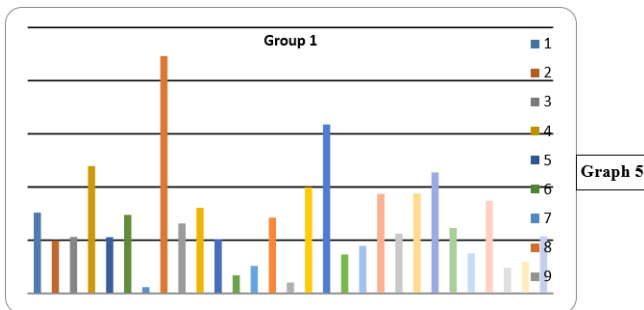


Graph 4

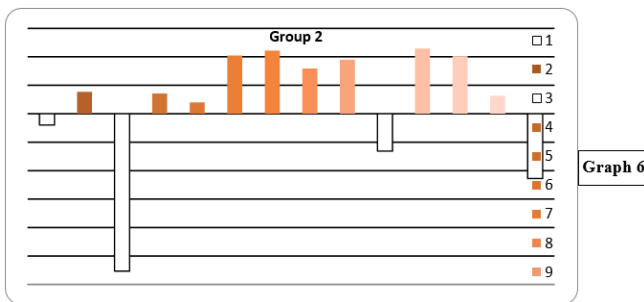
The study constitutes 7.45% and .56% ROA as the highest and lowest respectively for group 1. However, Group 2 has way up ROA of 8.49% and lowest ROA of -7.97%. The analysis founds all the company under group-1 have more or less stable return but for group 2 few companies have optimum return and few are worst that means there return on assets is not well balanced. So it can be inferred that group 1 has a strong ROA in contrast to group 2.

**Return on Equity**

ROE presents simple means for assessing return. Return on equity denotes how good the entity is in generating returns on the money it received from its shareholders. Return on equity (ROE) reckoned good or bad will depend on what's normal for an investor. Reasonably high or low ROE ratios will vary remarkably from one industry group or sector to another. When used to judge one entity to another similar entity the comparison will be more meaningful. By analyzing relevant data we perceive the subsequent outcome regarding ROE.



Graph 5



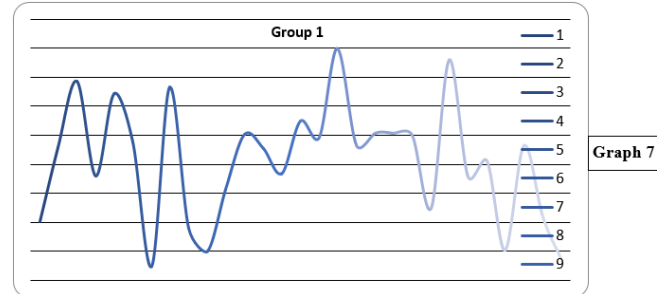
Graph 6

The ROE for group 1 seems good where maximum profit percentage stood up 22.31% and minimum profit for the group is .58%. Nonetheless, the scenario is quite the opposite for group 2 where maximum profit soared 11.46% and least -27.65%. From the above analysis, it seems that group 1 is doing better in contrast to group 2 in terms of return on equity.

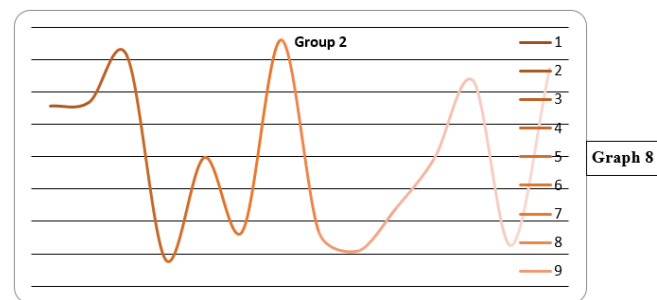
**Debt Asset Ratio**

Debt to asset Ratio is a financial ratio that designates the portion of assets that are being funded with debt. The higher the ratio, the greater the degree of leverage and financial risk. The debt to asset ratio is frequently used by analysts, investors, and creditors to ascertain the overall risk of a business entity. Entities with a higher ratio are more leveraged and hence, riskier to invest in and provide loans

to. The debt to asset ratio is very critical in governing the financial risk of an organization. A ratio greater than 1 indicates that a notable portion of assets is funded with debt and that the company may be facing non-payment risk. Therefore, the lower the debt to asset ratio, the safer the firm. The researchers found the following information by analyzing the data of these two groups of companies.



Graph 7

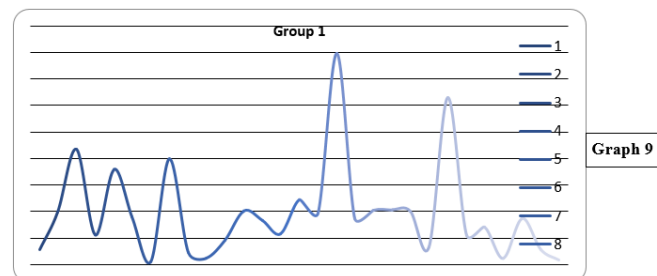


Graph 8

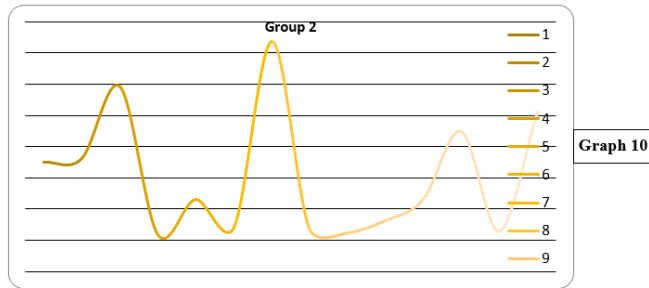
The maximum and minimum debt ratio for group 1 is .79 and .07 respectively. Regardless group 2 has a maximum and minimum ratio .76 and .08 separately. So it seems both groups positioned similarly in terms of financial risk.

**Debt Equity Ratio**

The debt-equity ratio is a measure of the comparative contribution of the creditors and shareholders or owners in the money employed in the venture. This financial kit gives an idea of how much-borrowed capital (debt) can be realized in the affair of liquidation using shareholder contributions. It is used for the evaluation of the financial leverage and soundness of a firm. Debt to Equity ratio is a long term solvency ratio that signifies the soundness of the long-term financial scheme of the company. If the ratio is increasing, the corporation is being financed by creditors rather than from its financial sources which may be a dangerous sign. A high debt/equity ratio means that a company has been aggressive in financing its growth with debt. This can result in volatile earnings as a result of the added interest expense. The study perceived the below information from the given data of two groups.



Graph 9



For group1 the highest and lowest debt-equity ratio is 3.97 and .05 respectively. But most of the company ratios stand above .5 which means maximum companies are debt-financed. It happened because most of the company's newly introduced green technology by taking an institutional loan (Bank loan). However, this ratio will decrease in the future through repayment of the loan. Moreover, group 2 has a different scenario. Their highest outcome is 3.17 and lowest .09. Nonetheless, most of the ratio of group 2 falls below .5. So it seems most of the companies in group 2 are less risky in terms of debt-equity ratio.

### LIMITATIONS OF THE STUDY

Although this study is conducted carefully, there are some unavoidable limitations.

- Limitation of time is one of the most important factors that is shortened to the present study. Due to time limitations, many aspects might not be discussed in the present study.
- No primary data is used, only secondary data is used for analysis.
- Sufficient books, publications, and figures were not available. If these limitations were not been there, the study would have been more useful.
- Only financial data of listed textile companies of DSE of 2018 is considered.

### CONCLUSION

Customers' demand for green products is on a sharp increase. Generally, companies try to provide goods that are demanded by consumers. But the organization will not go for green products or use green technology unless it knows the benefit of green technology. This paper studies the benefit of green technology in terms of profitability and solvency. From this study, we can draw several conclusions on the matter.

First of all, Companies that are using green technology (Group-1) have sharp differences in terms of profitability (ROS, ROA, ROE) in comparison to those that are not using green technology (Group-2). Second, both groups are in a similar position in terms of solvency. But this difference will vapour shortly when Group-1 will repay the loan which was required to adopt green technology. Thirdly, this study will also encourage other business concerns to adopt green technology.

To conclude, this study is a purely quantitative character. Moreover, it cannot be forgotten that other financial performance determiners may be useful for further research. Thus, it is advised to pay great attention to other financial variables.

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