Impact of Green Practices on the Financial Performance: A Study of Indian Automobile Companies

Manjit Kour*, Rajinder Kaur, Arshan Bhullar, Ritika Chaudhary

Chandigarh Group of Colleges, Jhanjeri, Mohali, India. *Email: manjuz.kw@gmail.com

Received: 18 June 2020 Accepted: 29 August 2020 DOI: https://doi.org/10.32479/ijefi.10462

ABSTRACT

The green Practices have established a lot of implications in modern business. Green specifies purity through fairness in price, quality and worth in dealings. Green practices focus on producing and promoting products to satisfy the wants and needs of the consumers. Automobile industry is beginning to adopt green practices to get maximum benefit by brand enhancement, long-term cost savings, improved compliance with regulations and to appeal to higher investor interest and talent. But there is still scope and need to participate more in green technologies. In such a situation, the automobile industry is facing dual pressure i.e., to maintain the financial performance of the firm in the long run and to save the environment at the same time. This paper is an effort to analyze the impact of green practices adopted on the financial performance of the automobile companies in India. For this study a structured questionnaire is administered to a sample of 285 supply managers of the automobile Industry in India. Structural equation modelling method is used to analyze the data. In the results, it was found that four factors i.e., Integrated Environmental Management, Eco design, Technology Integration and green marketing had positive and significant influence on financial performance of the automobile companies. However, Pollution Prevention and Customer Oriented were found to have no significant influence on automobile companies' financial performance.

Keywords: Green Practices, Financial Performance, Automobile Companies, Eco Design, Integrated Environmental Management, Technology Integration

JEL Classifications: C83, L11, G40, L62

1. INTRODUCTION

Sustainable development has become the essence of business survival. The green Practices have established a lot of implications in modern business. Green specifies purity through fairness in price, quality and worth in dealings. The green Practices have evolved special implications in modern business. Green indicates purity through quality, fairness in price and worth in dealings. Thus, green practices focus on adopting principles and processes that help achieve the goal of sustainability, social and economic justice in business decisions. However, mobilizing capital for green practices has been a challenging job due to several macro and microeconomic factors like information asymmetry, problems in internalizing environmental externalities, lack of government and regulatory support, inadequate analytical capacity, incompatible customer orientation etc. (G20 Green Finance Synthesis Report, 15 July, 2016).

The automotive industry (Mukherjee, 2020) has a deep impact on the society and environment. Automotive Industry provides mobility to millions and has played a significant role in job creation, but it also threatens the environment. Government regulations and stakeholder pressure for a competitive edge have forced the automotive industry to consider their environmental, social and ecological impacts in addition to their economic and financial status. As shared by Indian Brand Equity Foundation with the upsurge in the income of the middle-class and young population, the Indian Automobile sector has tremendous growth potential. Automobile industry (Peermohamed, 2020) is beginning to adopt green practices to get maximum benefit by brand enhancement,
long-term cost savings, and improved compliance with regulations and to appeal to higher investor interest and talent. But there is still scope and need to participate more in green technologies.

The automobile industry is facing dual pressure i.e., to maintain the financial performance of the firm in the long run and to save the environment at the same time. Commitment to the environment and sustainable development has become a strategic issue within the current competitive scenarios. Some studies suggest that environmental management helps organizations to improve their overall competitiveness and financial performance (Ambec and Lanoie, 2008; Hart, 1995; Porter and Van der Linde, 1995; Trung and Kumar, 2005). Others, however, have questioned the optimism of regarding the same (Jaffé et al., 1995; Walley and Whitehead, 1994). The aim of this paper is to carry out an empirical study to study the impact of green business practices on the financial performance of the business, the impact of these practices on various factors determining financial sustainability and progress.

### 2. REVIEW OF LITERATURE

#### 2.1. Green Practices (GPs) Implementation in Automobile Companies

The automobile industry’s positive impact (Conding, 2012) that can be observed from several features of products and processes must provide a major green impact. The chief objective of the Green program in the automotive business (Conding, 2013) is to change industrialized practices to reduce or reduce environmental risks (Stewart, 2001). Some studies recommended that the implementation of GPs such as Customer orientation (Theyel, 2001), green marketing, supply chain management practices, green lean six sigma, and green balanced scorecard strategy and so on as an actual process is to improve green recital mainly financial and environmental performance (Montabon et al., 2007; Bergmiller and McCright, 2009; Lin, 2011; Chien and Shih, 2007). Based on outcomes of preceding experimental investigation (Vachon and Klassen, 2006; Esty and Winston, 2006) Green Practices implementation as covering in Six diverse sizes of practices with Eco design (King and Lenox, 2001), Customer Orientation, Green marketing, Integrated Environment management, Technology Integration, pollution prevention.

##### 2.1.1. Eco-design (ED) and financial performance (FP)

Eco design needs that company’s design products that reduce consumption of materials and energy, Green Practices facilitate the recycle, reuse and recovery of element materials and parts, and avoid or reduce the use of harmful goods (Sarkis and Coreiro, 2001), within the industrial (Sarkis, 2003). Eco design is an important tool to support decision making regarding products that pay attention to environmental factors (Thogersen et al., 2010). Therefore, companies develop advertising strategies, green brands, eco-labels and green packaging to encourage green consumption patterns (Juwaheer et al., 2012). Images and messages from eco labels bring an optimistic control on consumers and their purchasing decisions, thereby, positively affecting the (McPeak, 2014) financial performance (Tang et al., 2004). Thus, the hypothesis is as follows:

\[ H_1: \text{Eco design has a positive and significant impact on financial performance of automobile companies.} \]

#### 2.1.2. Customers orientation (CO) and financial performance

Customer orientation (CO) is a structural culture that enables the thoughtful of directed buyers and sanctions for the continuous formation of consumer worth (Narver and Slater, 1990). Several researchers (Deshpande and Webster, 1989; Grawe et al., 2009; Narver and Slater, 1990) highlight that the main emphasis of consumer orientation is to highlight the looking for Supply Chain prospects and limits from the perspective of customers in order to create value for potential customers. The focus of customer orientation (Bhateja et al., 2011) is to satisfy the clients and it is supposed to lead to the manufacture of higher value for the consumers and contributes to the company’s ability to outperform in the marketplace (Day, 1994; Narver and Slater, 1990). The relationship amongst market orientation and performance is now set (Jaworshi and Kohli, 1993; Narver and Slater, 1990). The financial performance can be upgraded by market orientation meanwhile market orientation supports a firm to emphasis on replying and adjusting to its market needs efficiently. Thus, the hypothesis is as follows:

\[ H_2: \text{Customer orientation has a positive and significant impact on financial performance of automobile companies.} \]

#### 2.1.3. Green marketing (GM) and financial performance

Green marketing (GM) is defined as an enterprise’s marketing activities associated with its ethical and communal accountability desires (Dheeraj and Vishal, 2012). Green product images include products with environmentally friendly features, recyclability, and green packaging. Eco-friendly products positively affect the status of the business and its image (Smith, 2012). In addition, other researches results highlight that there is a association amongst proactive environmental strategies, firm performance and suggest that managers should consider green marketing as a strategy because it not only contributes to reducing costs but also optimizes business results and contributes to create comparative advantages (Fraj et al., 2011). In fact, consumers have increasing preference towards green products (Saxena and Khandelwal, 2008). Firms adopt green strategies such as green innovation, organizational greening, and green alliances (Cronin, 2011). Moreover, green marketing (GM) also brings sustainability towards businesses (Peattie and Crane, 2005). Thus, the hypothesis is as follows:

\[ H_3: \text{Green marketing has a positive and significant impact on financial performance of automobile companies.} \]

#### 2.1.4. Integrated environment management (IEM) and financial performance

Integrated environment management (IEM) (Vachon and Klassen, 2006) is the practice of rising the green supply chain managing as a tactical structural imperative over promise and provision of authoritative from senior and mid-level supervisors (Zhu et al., 2008). Developing products (Conding, 2012; Comoglio, 2012; Conding 2013sar) that use minimal resources can help the product enter the market at a lower cost and provides unexpected benefits such as the use of economic resources, thereby, protecting scarcity of natural resources to contribute to the ecological growth (Sharma and Iyer, 2012). In short, green practices (GM) is an
inevitable trend of businesses for sustainable development (Hart, and Milstein, 2003). The benefits of green products for businesses are not only in firm performance but also in environmental performance. Thus, the hypothesis is as follows:

\[ H_1: \text{Integrated environment management has a positive and significant impact on financial performance of automobile companies.} \]

2.1.5. Technology integration (TI) and financial performance

Esty and Winston (2006) suggested that Technology Integration is known as an info system that has remained changed and is familiar with observer green practices and outcomes. Chen (2005) noticed that green info is an essential to create decisions almost eco-design (Hart and Ahuja, 1996), in relations of resources and energy consumption, reprocess, reusing and reclamating of resources. Technology Integration (Vachon and Klassen (2006), is defining that main providers and a main client was completely related to comprise not only operational features associated to procedures and management structures. Additionally, they also advised that current Technology Integration within a supply chain can be predictable to absolutely impact on cooperative events associated with green practices issues. Thus, the hypothesis is as follows:

\[ H_2: \text{Technology Integration has a positive and significant impact on financial performance of automobile companies.} \]

2.1.6. Pollution prevention (PP) and financial performance

Diminishing unused and emission reduction (King and Lenox, 2002), associated with industrialization presents a sufficient prospect for enterprises to improve skill. Considerably well industrialized act has been established in that undergrowth anywhere environmentally-concerned with savings remained gradually allotted to pollution prevention (PP) technologies (Graham and McAdam, 2016). In latest research (Lucas and Noordewier, 2016) it is seen that green managing performs, with pollution prevention (PP) activities ensure a better consequence on commercial act. Thus, the hypothesis is as follows:

\[ H_3: \text{Pollution prevention has a positive and significant impact on financial performance of automobile companies.} \]

3. RESEARCH METHODOLOGY

This study is based on primary and secondary data. Secondary data was obtained from journals and financial statements of companies. For collecting primary data a 30 item questionnaire was developed on a five point likert scale with 1 as “strongly agree” and 5 as “strongly disagree.” It was developed on the basis of previous studies and Cronbach’s Alpha measure was used to test its reliability. A sample of 300 supply managers of the automobile industry was selected by convenience sampling method and questionnaire was administered to them. Out of 300 questionnaires only 285 complete responses were received and used for the study. Factor analysis (Field, 2009) was done to identify main factors and six factors were identified and on basis of their attributes they were named as Integrated Environment Management, Eco design, Technology Integration, Pollution prevention, Green marketing and Customer Oriented. Further structural equation modelling (SEM) method was applied to analyze the data.

4. DATA ANALYSIS AND RESULTS

4.1. Reliability and Validity Results

The questionnaire of the study needs to be checked for its accuracy, correctness and effectiveness before it is used for the implementation of the study. Table 1 shows the results of Reliability Analysis using Cronbach’s Alpha. All the variables were found to have Cronbach’s Alpha values above 0.7 which shows that data is reliable (Nunnally, 1978).

4.2. EFA Results

Exploratory factor analysis (EFA) was applied using varimax rotation to extract factors with the Eigenvalue of 1 or higher as recommended by Hair et al. (2006). The KMO value of the data was found to be at 0.784 which shows the sampling adequacy. Bartlett’s test result is also obtained significant with P < 0.001 (Table 2).

4.3. Structural Equation Modeling

4.3.1. Confirmatory factor analysis: Measurement model

Confirmatory factor analysis is a method which enables to validate the constructs extracted from exploratory factor analysis. The Figure 1 shows the measurement model of all six exogenous variables and one endogenous variable.

4.3.2. Structural model

The next step in SEM analysis is to develop Structural models by assessing the relationships from one construct to another. The relationship between extracted factors are created based on the previous studies results and hypotheses were developed accordingly. Figure 2 shows the structural model for the hypothesized proposed framework based on the measurement model developed previously.

4.3.3. Model fit results of structural model

SEM method involves testing of the Structural model called Model Fit analysis. It includes checking of all the goodness of fit indices that are within the specified limit as suggested by Hair et al. (2010). Table 3 shows all the model fit indices results of

<table>
<thead>
<tr>
<th>Table 1: Reliability results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constructs</strong></td>
</tr>
<tr>
<td>Eco-design (ED)</td>
</tr>
<tr>
<td>Pollution prevention (PP)</td>
</tr>
<tr>
<td>Technology integration (TI)</td>
</tr>
<tr>
<td>Customer oriented (CO)</td>
</tr>
<tr>
<td>Financial performance (FP)</td>
</tr>
<tr>
<td>Green marketing (GM)</td>
</tr>
<tr>
<td>International environment management (IEM)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: KMO and Bartlett’s test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin measure of sampling adequacy</td>
</tr>
<tr>
<td>Bartlett’s test of sphericity</td>
</tr>
<tr>
<td>Approx. Chi-square</td>
</tr>
<tr>
<td>Sig.</td>
</tr>
</tbody>
</table>
the structural model. All the indices were categorized into three major parts i.e. absolute goodness of fit, absolute badness of fit and incremental fit measures.

The Chi-square value was acquired at significant p-value. All the absolute goodness of fit indices was obtained within the standardized range. The CMIN/DF value was 1.629, which is below the threshold limit of 3 as suggested by Straub (1989). The goodness of fit (GFI) value was calculated at 0.912, which is above the minimum limit of 0.90 defined by Hair et al. (2010). Similarly, RMR (0.031) and RMSEA (0.047) both were attained within the range specified by Hair et al. (2010). Other goodness of fit indices like NFI and TLI were obtained above the required limit of 0.90. The CFI for the model was calculated at 0.965, which signifies that the model is fit for analysis.

4.3.4. Hypotheses testing results

The structural model created using SEM analysis gives the results which show the effect of a particular exogenous construct on an endogenous construct. Table 4 shows the summary of all the hypotheses regarding the Structural Model and its results whether a hypothesis is accepted or rejected:
Table 3: Model fit results

<table>
<thead>
<tr>
<th>Model fit indices</th>
<th>Recommended criterion (Hair et al., 2010)</th>
<th>Measurement model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute goodness of fit</td>
<td>413.804</td>
<td></td>
</tr>
<tr>
<td>Chi-square</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td>Probability</td>
<td>P&lt;0.05</td>
<td>1.629</td>
</tr>
<tr>
<td>Chi-square/Degree of freedom (CMIN/DF)</td>
<td>&lt;3</td>
<td>0.912</td>
</tr>
<tr>
<td>Goodness of fit (GFI)</td>
<td>&gt;0.9</td>
<td></td>
</tr>
<tr>
<td>Absolute badness of fit</td>
<td>0.03-0.08</td>
<td>0.031</td>
</tr>
<tr>
<td>Root mean residual (RMR)</td>
<td>0.03-0.08</td>
<td>0.047</td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental fit measure</td>
<td>&gt;0.95</td>
<td>0.965</td>
</tr>
<tr>
<td>Comparative fit index (CFI)</td>
<td>&gt;0.90</td>
<td>0.915</td>
</tr>
<tr>
<td>Normed fit index (NFI)</td>
<td>&gt;0.90</td>
<td>0.959</td>
</tr>
<tr>
<td>Tucker Lewis index (TLI)</td>
<td>&gt;0.90</td>
<td></td>
</tr>
</tbody>
</table>

***Represents significance level at 0.001 (two-tailed)

Table 4: Regression weights, estimate, P value, and hypothesis testing results

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>P</th>
<th>Significance</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP&lt;--- ED</td>
<td>0.190</td>
<td>0.055</td>
<td>3.469</td>
<td>***</td>
<td>Significant</td>
<td>H1-Accepted</td>
</tr>
<tr>
<td>FP&lt;--- CO</td>
<td>0.030</td>
<td>0.041</td>
<td>0.735</td>
<td>0.463</td>
<td>Non-significant</td>
<td>H2-Rejected</td>
</tr>
<tr>
<td>FP&lt;--- GM</td>
<td>0.350</td>
<td>0.073</td>
<td>4.770</td>
<td>***</td>
<td>Significant</td>
<td>H3-Accepted</td>
</tr>
<tr>
<td>FP&lt;--- IEM</td>
<td>0.228</td>
<td>0.059</td>
<td>3.856</td>
<td>***</td>
<td>Significant</td>
<td>H4-Accepted</td>
</tr>
<tr>
<td>FP&lt;--- TI</td>
<td>0.342</td>
<td>0.083</td>
<td>4.101</td>
<td>***</td>
<td>Significant</td>
<td>H5-Accepted</td>
</tr>
<tr>
<td>FP&lt;--- PP</td>
<td>0.050</td>
<td>0.041</td>
<td>1.221</td>
<td>0.222</td>
<td>Non-significant</td>
<td>H6-Rejected</td>
</tr>
</tbody>
</table>

The Table 4 represents the summary of the analysis to interpret the hypotheses, it was found that four variables i.e., Eco Design, Green Marketing, Internal Environment Management and Technology integration significantly influence the financial performance of Automobile companies. Therefore, H1, H2, H3, and H4 hypotheses were accepted, and H5 and H6 were not accepted.

5. DISCUSSION AND CONCLUSION

Sustainable development and green practices is the need of an hour. Green practices are not only important for sustainable development and environment conservation but they are also found to have a positive impact on goodwill of the company and eventually financial performance of the company. In our study the impact of green practices on financial performance of automobile companies is analyzed empirically. Six factors of green practices are identified by review of literature and confirmed by factor analysis. The influence of these factors on financial performance of automobile industries is evaluated by SEM analysis. It is found that Green marketing is the most prominent factor which influences financial performance. It is found in previous studies also that ecofriendly products build positive image of companies and give them competitive edge (Smith, 2012; Fraj et al., 2011). This competitive edge helps them earn more as compared to their competitors and thus improves their financial performance.

Next GP factor that has a significant influence on the financial performance of automobile companies is Technology integration. Technology integration is the use of the technology to monitor and modify environmental impact and practices. It is an important green practice factor that impacts financial practices as Technology integration helps people to know and gauge the impact they are making on the environment by use of that particular vehicle/car. It gives them a measure of their environmental impact and thus contributes to green practices.

Integrated environment management is the next factor that impacts financial performance of automobile companies. Integrated environment management and Technology integration go side by side and both are positively associated with the green information system. It was also found in previous studies that competitive opportunities are available to companies through environmental management (Gonzalez-Benito and Gonzalez-Benito, 2005). Eco design was also found to be an important factor having influence on financial performance. Eco design is the use of environment conservation related images and messages. It is reported in previous studies also that eco-labels bring a positive impact on consumers and their purchasing decisions, thereby, positively affecting the financial performance (Tang et al., 2004).

This study is of high significance to automobile companies as it will help them in policy decision making to improve their financial performance. This study has revealed that green practices can positively impact financial performance of the automobile companies. So automobile companies should adopt these practices to improve profitability. They should focus more on Green marketing, Technology integration, Integrated Environment management and Eco design. These recommendations will help them in improving their image, goodwill and eventually profits.

This study is of relevance to research scholars also who want to study about green practices and financial performance.
REFERENCES


Peattie, K., Crane, A. (2005), Green marketing: Legend, myth, farce, prophesy? Qualitative Marketing Research, 8(4), 357-370.


