

Promoting Corporate Image: A Reflection on Green Supply Chain Management Approach

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ABSTRACT:

Corporate image is an important organizational resource that enables to create, strengthen and sustain competitive advantage. Different antecedents have been identified for corporate image in the literature including quality of products and services, consumer consideration or distribution system. Green supply chain management appears to be an antecedent of corporate image too. This study examines the relationships between green supply chain management and corporate image. It explores the main effects of different dimensions of green supply chain management on corporate image. To this end, we conducted a survey among the employees of Shahid Ghandi Co. in Yazd. A total of 220 questionnaires were sent out and 165 valid responses were received. In this study Structural Equation Modeling was employed to determine the relationship between green supply chain management and corporate image. The results of the study show that, green supply chain management is a strong antecedent for establishing corporate image. The empirical findings show that green supply chain management plays an important role in establishing and maintaining corporate image. In addition, we concluded that of the six dimensions of green supply chain management, corporate image was more affected by green purchasing, cleaner production, recovery and pollution dimension.

Keywords: *Green Supply Chain Management, Corporate Image, Path diagram, Structural Equation Modeling*

INTRODUCTION

Image was, is, and always will be of immense importance to organizations, whether commercial, governmental or not-for-profit. To reach their goals, stay competitive and prosper, good image paves the organizational path to acceptance and approval by stakeholders. Even organizations operating in difficult ethical environments need to sustain a positive image where possible. Organizations increasingly recognize the importance of corporate image to achieve their goals and stay competitive (Kim

and Lee, 2010). The majority of empirical studies have employed predictor variables of corporate image, including customer satisfaction, service quality, value, awareness of organization's products, perceptions about culture, personality of the focal firm, and general expectations. While the impact of these variables on corporate image has received closer scrutiny, green supply chain management's implications for promoting corporate image have not been an explicit focus of the literature. This research provides some

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empirical support for the key role of green supply chain management in promoting corporate image.

Literature Review

Green Supply Chain Management

Supply chain management is the coordination and management of a complex network of activities involved in delivering a finished product to the end-user or customer (Zhu et al., 2007; Ninlawan et al., 2010). Supply chain management has traditionally been viewed as a process where in raw materials are converted into final products, then delivered to the end-consumer. This process involves extraction and exploitation of the natural resources. It is important to note however that we live in a decade where environmental sustainability has been an important issue to business practice. Since the early 1990's, manufacturers have been faced with pressure to address Environmental Management in their supply chains. This is not an easy task to do however. Adding the 'green' concept to the supply chain concept adds a new paradigm where the supply chain will have a direct relation to the environment. This is interesting because, in history, these two paradigms were once in head-on collision with each other (Srivastava, 2007). Supply chains, in an operational sense, are about extracting and exploiting raw materials from the natural environment (Fortes, 2009).

With increase in environmental concerns during the past decade, a consensus is growing that environmental pollution issues accompanying industrial development should be addressed together with supply chain management, thereby contributing to green supply chain management (GSCM) (Hsu and Hu, 2008). In addition, globalized enterprises, have increasingly undertaken measures, including the integration of corresponding suppliers, distributors, and reclamation facilities in order to green their supply chains. The above cases consider designing products which can be reused, together with the different possibilities of used product recovery. Environmental issues, e.g., used product recycling, waste disposal, and industry-induced pollution protection, therefore, can be addressed in an integrated fashion within the achievement of business operational goals (Sheu et al., 2005).

Green supply chain management is an emerging field that strands out of the traditional supply chain perspective. The "quality revolution in the late 1980's and the supply chain revolution in the early 1990's" have sparked businesses to become environmentally conscious (Srivastava, 2007).

GSCM has emerged as an important new archetype for enterprises to achieve profit and market share objectives by lowering their environmental risks and impacts while raising their ecological efficiency (Shang et al., 2010). GSCM is designed to incorporate environmental considerations into decision making at each stage of an organization's materials management and logistics functions through post-consumer disposal (Zhu et al., 2008).

GSCM has gained popularity with both academics and practitioners to aim in reducing waste and preserving the quality of product-life and the natural resources. Eco-efficiency and remanufacturing processes are now important assets to achieve best practice. Global market demands and governmental pressures are pushing businesses to become more sustainable (fortes, 2009). Even increasing government regulation and stronger public mandates for environmental accountability have brought these issues into the executive suites, and onto strategic planning agendas (Walton et al., 1998).

The idea of GSCM is to eliminate or minimize waste (energy, emissions, chemical/hazardous, solid wastes) along supply chain (Hervani et al., 2005). Green supply chain management represents a recent and important inter- and intra-organizational set of environmental management practices useful for logistics management in this context. GSCM is designed to incorporate environmental considerations into decision making at each inbound logistics stage of materials management all the way through to the outbound logistics stage of post-consumer disposal and the closing-the-loop concept of reverse logistics (Zhu et al., 2008).

Why Going Green

There are different motivators for companies to switch to green in their supply chain. Some organizations are simply doing this because it is the right thing to do for the environment. Perhaps some are more radical to environmental change, but others may not. Profitability and cost

reduction are some of other main motivators for businesses to become green in the supply chain (Darnall et al., 2008). Companies go green because a green supply chain aims at confining the wastes within the industrial system in order to conserve energy and prevent the dissipation of dangerous materials into the environment (Paksoya et al., 2011).

Supply chain greening initiatives have benefits on the level of the individual firm as well as on the national level. For individual firms, Supply chain greening programs bring distinct competitive advantages in terms of lower Costs, Greener Products and better integration with suppliers. On a national level, greening of supply chains can stimulate markets for green products, while also creating incentives for SMEs to adopt better environmental practices (Hwa, 2001).

Key Themes in Green Supply Chain Management

The Key themes that came out of the GSCM literature over the last twenty years are the concepts of Green purchasing, green design, green operations (green manufacturing), reverse logistics (Guide and Srivastava, 1998; Fortes, 2009) and all these needs Green HR.

Green Purchasing

The concept of integrating suppliers with production and other operations is closely related and encompassed by the concept of green purchasing which is also becoming prevalent nowadays. Consumers are slowly starting to favor green products, which are manufactured using environment friendly raw materials with environment friendly production processes, and thus to make green marketing successful, a company has to integrate its environmental goals with its supply strategies (Rao, 2004).

Green purchasing is defined as an environmental purchasing consisting of involvement in activities that include the reduction, reuse and recycling of materials in the process of purchasing. Besides green purchasing is a solution for environmentally concerned and economically conservative business, and a concept of acquiring a selection of products and services that minimizes environmental impact (Salam, 2008). The findings show that Supplier selection in green purchasing activities is the

most important activity. Supplier selection includes (Ninlawan et al., 2010):

- ✓ Purchase materials or parts only from Green Partners who satisfy green partner environmental quality standards and pass an audit process in following regulations for the environment-related substances
- ✓ Consider suppliers who acquire ISO14000, OHSAS18000 and/or RoHS directives
- ✓ Select suppliers who control hazardous substances in company's standard lists and obtain green certificate achievements

Green Design

The environmental scientists' task is no longer limited to the post event management of environmental pollution, but also to determine sources, control, repair and effectively stop environmental pollution (Taghaboni-Dutta et al., 2010). Green design is an important sub-topic to Green supply chain management. It is about designing a product or a service that encourages environmental awareness. Organizations have definite potential to become eco-friendly towards product re-manufacturing (fortes, 2009).

Green design has been used extensively in the literature to denote designing products with certain environmental considerations. It is the systematic consideration of design issues associated with environmental safety and health over the full product life cycle during new production and process development. Its scope encompasses many disciplines, including environmental risk management, product safety, occupational health and safety, pollution prevention, resource conservation and waste management. The aim is to develop an understanding of how design decisions affect a product's environmental compatibility (Srivastava, 2007).

A common approach is to replace a potentially hazardous material or process by one that appears less problematic. This seemingly reasonable action can sometimes be undesirable if it results in the rapid depletion of a potentially scarce resource or increased extraction of other environmentally problematic materials. Several examples of such equivocal proposals are measuring the environmental performance of new products, assessing the environmental performance of alternative solid waste

management options that could be used, design under legislation and regulations, design for remanufacturing, design for recycling issues, better choices of material, Life-cycle assessment/analysis (Srivastava, 2007).

Life-cycle assessment/analysis is one of the most important approach which is defined as a process for assessing and evaluating the environmental, occupational health and resource-related consequences of a product through all phases of its life, i.e. extracting and processing raw materials, production, transportation and distribution, use, remanufacturing, recycling and final disposal (Gungor and Gupta 1999). Life-cycle assessment/analysis includes tracking all material and energy flows of a product from the retrieval of its raw materials out of the environment to the disposal of the product back into the environment (Arena et al., 2003)

Green Manufacturing/Operations

Green operations relate to all aspects related to product manufacture/remanufacture, usage, handling, logistics and waste management once the design has been finalized. Green manufacturing aims to reduce the ecological burden by using appropriate material and technologies, while remanufacturing refers to an industrial process in which worn-out products are restored to like-new condition (Lund, 1984).

Green manufacturing is defined as production processes which use inputs with relatively low environmental impacts, which are highly efficient, and which generate little or no waste or pollution. Green manufacturing can lead to lower raw material costs, production efficiency gains, reduced environmental and occupational safety expenses, and improved corporate image. It includes hazardous substance control, energy-efficient technology and waste minimization (Ninlawan et al., 2010).

The key challenges of GSCM such as integrating remanufacturing with internal operations, understanding the effects of competition among remanufacturers, integrating product design, product take-back and supply chain incentives, integrating remanufacturing and RL with supply chain design are posed in this area (Srivastava, 2007).

Greening of manufacturing refers to two aspects of environmental protection: Reduction

of pollution causing substances and Conservation of renewable and non-renewable natural resources. There are four frameworks commonly used by the industry while greening of production in their factories. These include Cleaner production, Eco-efficiency, Lean production and Total quality environment management. The extent to which the greening production frameworks would be applied would depend to a large extent on the integration of suppliers and commitment of the workers (Rao, 2004).

The implementation of green operations relies more on innovative and creative techniques rather than heavy investments in environment friendly technology. This includes the need to need to work in close coordination with workers and suppliers (Rao, 2004).

Green Distribution

Green distribution are consists of green packaging and green logistics. Packaging characteristics such as size, shape, and materials have an impact on distribution because of their affect on the transport characteristics of the product. Better packaging, along with rearranged loading patterns, can reduce materials usage, increase space utilization in the warehouse and in the trailer, and reduce the amount of handling required (Ho et al., 2009).

In the distribution process, organizations minimize packaging materials and stress reverse distribution. An organization may encourage its end consumers to efficiently use the products by including instructions and suggestions in product manuals. In the waste disposal process, a company must comply with regulations regarding collection and disposal of hazardous materials.

Reverse Logistics

Reverse Logistics (RL) is the opposite of traditional or forward logistics (Beamon, 1999). Reverse logistics is a process where a manufacturer accepts previously shipped products from the point for consumption for possible recycling and re-manufacturing (Fortes, 2009). Reverse logistics is the process of retrieving the product from the end consumer for the purposes of capturing value or proper disposal. Activities include collection, combined inspection/selection/sorting, re-processing/direct

recovery, redistribution, and disposal (Ninlawan et al., 2010).

Reverse Logistics is defined as 'the process of planning, implementing, and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper (Srivastava, 2007).

Green HR

Green HR refers to the contribution of people management policies and activities towards this broader agenda. Green HR has to be instilled in the mind of everyone in the organization. For this, the organization should communicate a lot to edify the concept towards motivating all in order to implement and flourish this concept. Green HR involves two essential elements: environmentally friendly HR practices and the continuation of knowledge capital (Khasnabis and Choudhury, 2011). Some ways by which HR professional can make sure the necessary changes in the organizational policies towards the better environment are listed below (Agarwal and Tyagi, 2011; Khasnabis and Choudhury, 2011):

- ✓ Adopt new technology/ Process or modify existing technology/ Process so as to reduce environmental impact.
- ✓ Establish a management control system that will lead to adherence of stringent environmental safety norms.
- ✓ Discussions of how and to what extent HR policies and practices can improve the environmental performance of organizations
- ✓ Specific HR philosophies, policies and/or practices that support or inhibit change around environmental issues
- ✓ Changing attitudes and behaviors related to environmental issues in the work-place
- ✓ Green performance indicators into performance management system and appraisals
- ✓ Green job candidates
- ✓ Training in environmental management (EM) aspects of safety, energy efficiency, waste management and recycling
- ✓ Use of EM -based rewards

GSCM Pressures and Performance Influences

A number of potential groups will influence organizational adoption of GSCM and other environmental practices. We can see that pressures may potentially arise from regulators, supply chain partners, competitors and the market (consumers and customers). These pressures are as follows (Zhu et al., 2005):

Supply chain pressure

- ✓ Supplier's advances in developing environmentally friendly goods
- ✓ Supplier's advances in developing environmentally friendly packages
- ✓ Environmental partnership with suppliers
- ✓ Competitors' green strategies
- ✓ Industrial professional group activities
- ✓ Enterprise's environmental mission

Cost related pressure

- ✓ Cost for disposal of hazardous materials
- ✓ Cost of environmentally friendly goods
- ✓ Cost of environmentally friendly packaging

Marketing

- ✓ Export
- ✓ Sales to foreign customers

Regulations

- ✓ Central governmental environmental regulations
- ✓ Regional environmental regulations

There are some relationships between GSCM practices and performance including environmental, economic and operational performance. They are as follows (Zhu et al., 2005):

Environmental performance

- ✓ Reduction of air emission
- ✓ Reduction of waste water
- ✓ Reduction of solid wastes
- ✓ Decrease of consumption for hazardous/harmful/toxic materials Decrease of frequency for environmental accidents
- ✓ Improve a enterprise's environmental situation

Operational performance

- ✓ Increase amount of goods delivered on time

- ✓ Decrease inventory levels
- ✓ Decrease scrap rate
- ✓ Promote products' quality
- ✓ Increased product line
- ✓ Improved capacity utilization

Positive economic performance

- ✓ Decrease of cost for materials purchasing
- ✓ Decrease of cost for energy consumption
- ✓ Decrease of fee for waste treatment
- ✓ Decrease of fee for waste discharge

Negative economic performance

- ✓ Increase of investment
- ✓ Increase of operational cost
- ✓ Increase of training cost
- ✓ Increase cost of purchasing environmentally friendly materials

Corporate Image

Corporate image is the result of everything a company does. Image is determined by all the company's activities in the domain of products and services, behavior and attitudes (corporate culture), approach to growing questions regarding ecologically acceptable and socially responsible business practices, and corporate communications. All this influences the forming of public perceptions regarding what the company actually represents, with different groups forming their own perceptions regarding the company's image. A common element among the numerous definitions of corporate image can be observed: image primarily relates to the overall impression that the company leaves in the public consciousness. Image possesses a cognitive (logical) component, which refers to clearly observable product quality, packaging, color, logo, symbols, etc. In addition to tangible and clearly observable characteristics, image also possesses a conative (emotional) component, reflected in its power to induce appropriate emotional states (joy, tranquility, excitement...) among consumers (Veljković and Petrović, 2011).

Corporate image is defined as the "overall impression" left in the customers' mind as a result of accumulative feelings, ideas, attitudes and experiences with the organization, stored in memory, transformed into a positive/negative meaning, retrieved to reconstruct image and recalled when the name of the organization is

heard or brought to ones' mind (Bravo et al., 2009). Thus, corporate image is a result of communication process in which the organizations create and spread a specific message that constitutes their strategic intent; mission, vision, goals and identity that reflects their core values that they cherish (Abd-El-Salam et al., 2013). Corporate image is defined as the perception of an organization that customers' hold in their memories. Because it works as a filter through which a company's whole operation is perceived, a corporate image reflects a company's overall reputation and prestige. A corporate image emerges from a customer's net consumption experiences; hence, perceptions of service quality affect corporate image (Kim and Lee, 2010).

Corporate image is a perception of an organization held in consumer memory and works as a filter which impacts the perception of the operation of the company. It is seen as the representation of a brand in the consumer's mind that is connected to an offering or a set of perceptions about a brand the consumer forms as reflected by brand associations. Corporate image is related to the various physical and behavioral attributes of the firm, such as business name, architecture, variety of products/services, tradition, ideology and to the impression of quality communicated by each person interacting with the firm's clients (Ghalandari et al., 2013).

Elements of Corporate Image

A company's corporate image is formed on the basis of its history, beliefs and business philosophy, nature of its technology, ownership structure, the people that make up the company, and its ethical and cultural value system (Veljković and Petrović, 2011).

In building corporate image, company management should carefully approach the issue of conceiving and managing tangible components that influence the formation of image – the array of products and/or services offered, their attributes, additional, clearly observable benefits, etc. Attention should also be paid to intangible components that are becoming increasingly important in the process of differentiation from the competition and the building of a distinct corporate image under contemporary market conditions – service before, during and after sales, loyalty programs,

specially designed service and benefit packages for specific buyers, etc. The growing importance of intangible image elements points to the importance of employees and their motivation to additionally strengthen the company's positive image in interactive contact with consumers. In addition, in a time filled with burning ecologically related questions, clearly expressed and adequately communicated company views on environmental protection policy can significantly contribute to improvements of its image in consumer consciousness. The following stand out as the most important elements of corporate image (Veljković and Petrović, 2011):

- Products and/or services – attributes and benefits for consumers
 - ✓ Quality
 - ✓ Innovativeness
- People and relations
 - ✓ Company orientation toward consumers/ stakeholders
- Values and programs
 - ✓ Ecological responsibility
 - ✓ Social responsibility
- Corporate credibility
 - ✓ Expertise
 - ✓ Trust
 - ✓ General public approval

RESEARCH METHOD

The aim of this study is to explore the relationship between green supply chain management and corporate image. The target population of this study was the employees of Shahid Ghandi Co. in Yazd province and of the 220 questionnaires that were distributed, 165 usable questionnaires were returned, a response rate of 75%.

Corporate image was measured by the 34-Item scale developed by Caruana and Chircop (2000). Green supply chain management was measured by six dimension approach developed by Shekari et al. (2011). The questions for measuring green supply chain management were classified under six constructs including internal environmental management, green purchasing, cleaner production, recovery, eco-design and pollution. The variable corporate image was

measured directly. Reliability of constructs was evaluated by Cronbach's α . Table 1 lists the Cronbach's α of the constructs. As can be seen, all constructs have Cronbach's above 0.7, which indicates high reliability.

Research Hypothesis

The main hypothesis of paper is coming as below:

H₁: Green supply chain management has positive impact on corporate image.

So we could extend the main hypothesis of the paper as below:

H₁₁: Internal environmental management has positive impact on corporate image.

H₁₂: Green purchasing has positive impact on corporate image.

H₁₃: Cleaner production has positive impact on corporate image.

H₁₄: Recovery has positive impact on corporate image.

H₁₅: Eco-design has positive impact on corporate image.

H₁₆: Pollution has positive impact on corporate image.

Data Analysis

We used Kolmogorov-Smirnov test to check the variables' normality assumption. Table 2 shows the results of One-Sample Kolmogorov-Smirnov Test. Since the p-value of all variables is less than 0.05, we conclude that none of the variables' distributions is normal (Rouhi et al., 2013). So we have to use non-parametric tests.

Table 1: Cronbach's α of the constructs

Variable	constructs	No. of questions	Cronbach's α
Green supply chain management	Internal environmental management	9	0.751
	Green purchasing	5	0.794
	Cleaner production	9	0.876
	Recovery	4	0.821
	Eco-design	4	0.902
	Pollution	3	0.841
Corporate image	-----	34	0.782

Table 2: One-sample Kolmogorov-Smirnov test

		Environmental management	Green purchasing	Cleaner production	Recovery	Eco design	Pollution	GSCM	Corporate image
N		165	165	165	165	165	165	165	165
Normal Parameters ^{a,b}	Mean	4.2000	4.5273	4.7576	3.4848	4.6242	3.6909	4.1697	4.8303
	Std. Deviation	0.76668	0.87348	0.42985	0.70370	0.48579	0.76204	0.86690	0.37651
Most Extreme Differences	Absolute	0.264	0.403	0.471	0.391	0.405	0.309	0.304	0.504
	Positive	0.191	0.294	0.286	0.391	0.276	0.309	0.214	0.326
	Negative	-0.264	-0.403	-0.471	-0.245	-0.405	-0.182	-0.304	-0.504
Kolmogorov-Smirnov Z		3.388	5.174	6.053	5.022	5.198	3.964	3.900	6.477
Asymp. Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a. Test distribution is Normal.

b. Calculated from data.

Since the variables' distributions were not normal, we use Spearman's test for calculating Correlations. Table 3 contains the inter-correlations of all the measures. It is seen that all the constructs of green supply chain management are positively correlated with corporate image.

Correlations can only reveal the degree of relationship between constructs. To further understand the direct effects, Structural equation modeling was performed using LISREL. We employed Structure Equation Modeling (SEM) to determine the relationship between green supply chain management and corporate image. Structural equation modeling is a versatile statistical modeling tool. SEM is a technique involving multiple regression analysis, path analysis and confirmatory factor analysis (Hussey and Eagan, 2007). SEM consists of structure equations and measurement equations. Structure equations depict the relationship among latent variables, which shows the

qualitative relationship between exogenous variables and endogenous variables in the multiple regression analysis. Measurement equations map the relationship between latent variables and observable variables by confirmatory factor analysis (Jia and Liu, 2008). A SEM analysis follows the following process (Zenget al., 2010):

- ✓ Review the relevant theory and research literature to support model specification
- ✓ Specify a model (e.g., diagram, equations)
- ✓ Determine model identification
- ✓ Select measures for the variables represented in the model
- ✓ Collect data
- ✓ Conduct preliminary descriptive statistical analysis
- ✓ Estimate parameters in the model
- ✓ Assess model fit
- ✓ Respecify the model if meaningful
- ✓ Interpret and present results.

Table 3: Correlations of constructs and variables

		Environmental management	Green purchasing	Cleaner production	Recovery	Eco design	Pollution	Corporate image	
Spearman's rho	Environmental management	Correlation Coefficient	1.000	0.355*	0.210**	0.274*	0.289**	0.323**	0.368**
		Sig. (2-tailed)	.	0.007	0.007	0.026	0.000	0.000	0.000
		N	165	165	165	165	165	165	165
	Green purchasing	Correlation Coefficient	0.355*	1.000	0.180**	0.278**	0.144**	0.303	0.632**
		Sig. (2-tailed)	0.007	.	0.035	0.000	0.083	0.000	0.009
		N	165	165	165	165	165	165	165
	Cleaner production	Correlation Coefficient	0.210**	0.180**	1.000	0.202**	0.229**	0.346	0.618**
		Sig. (2-tailed)	0.007	0.035	.	0.000	0.000	0.000	0.000
		N	165	165	165	165	165	165	165
	Recovery	Correlation Coefficient	0.274*	0.278**	0.202**	1.000	0.221**	0.078**	0.658
		Sig. (2-tailed)	0.026	0.000	0.000	.	0.000	0.210	0.004
		N	165	165	165	165	165	165	165
	Eco-design	Correlation Coefficient	0.289**	0.144**	0.229**	0.221**	1.000	0.178**	0.193**
		Sig. (2-tailed)	0.000	0.083	0.000	0.000	.	0.000	0.000
		N	165	165	165	165	165	165	165
	Pollution	Correlation Coefficient	0.323**	0.303	0.346	0.078**	0.178**	1.000	0.651**
		Sig. (2-tailed)	0.000	0.000	0.000	0.210	0.000	.	0.000
		N	165	165	165	165	165	165	165
Corporate image	Correlation Coefficient	0.368**	0.632**	0.618**	0.658	0.193**	0.651**	1.000	
	Sig. (2-tailed)	0.000	0.009	0.000	0.004	0.000	0.000	.	
	N	165	165	165	165	165	165	165	

* Correlation is significant at the 0.05 level (2-tailed).
 ** Correlation is significant at the 0.01 level (2-tailed).

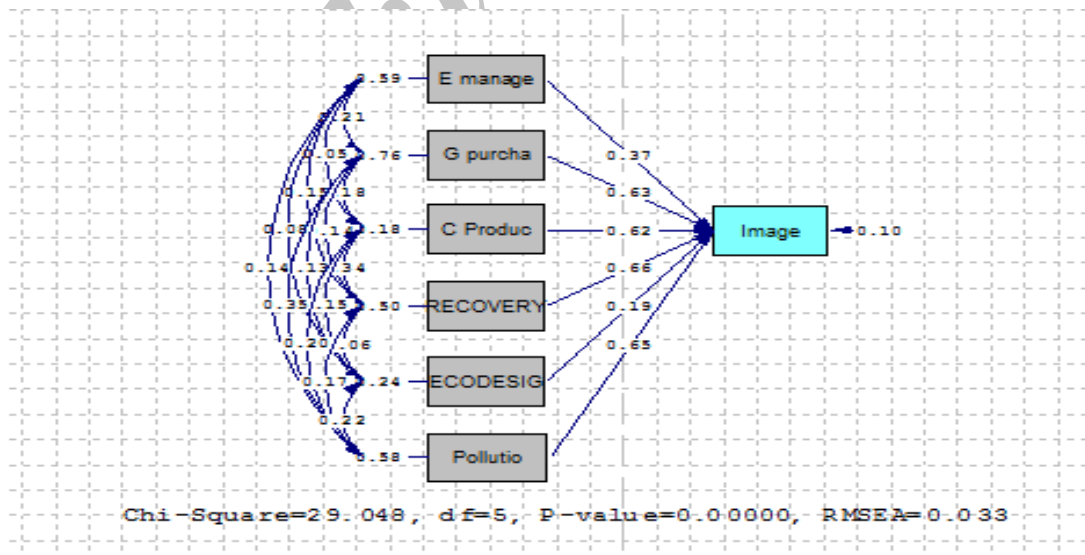


Figure 1: Path diagram of the model (standardized coefficients)

Figure 1 shows the Path diagram of the completely mediating model and figure 2 shows the T-values of path diagram.

Table 4 contains the effects of the constructs of green supply chain management on corporate image.

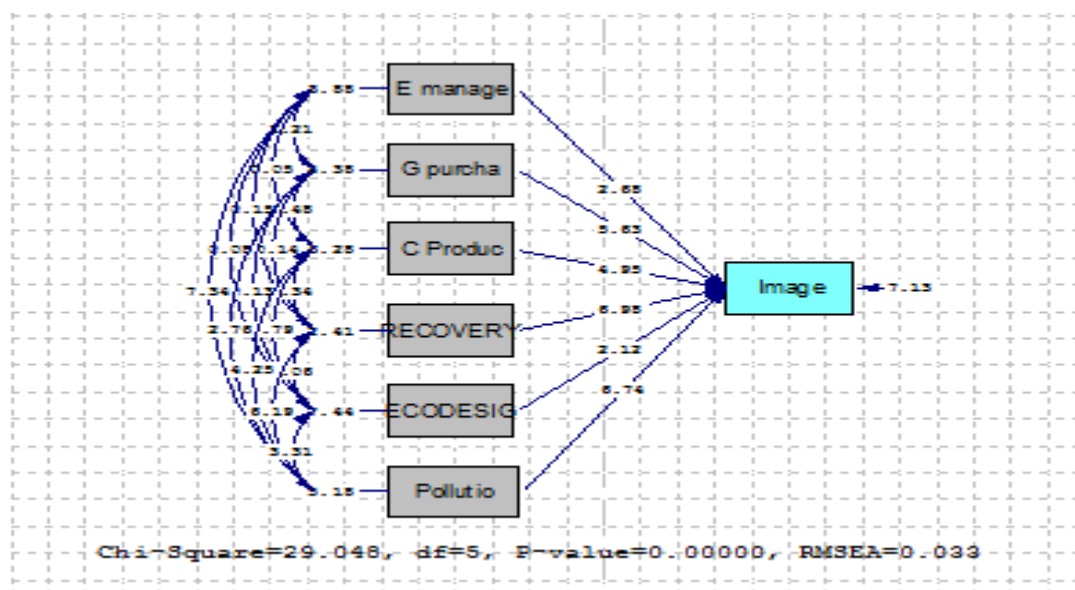


Figure 2: T-values of path diagram (unstandardized coefficients)

Table 4: The Effects of the constructs of GSCM on corporate image

Paths/hypotheses	Standard path coefficient	T-Value	Hypothesized relationship	Results
Internal environmental management→ Corporate Image	0.37	2.68	Positive	Supported
Green purchasing→ Corporate Image	0.63	5.63	Positive	Supported
Cleaner production→ Corporate Image	0.62	4.95	Positive	Supported
Recovery→ Corporate Image	0.66	6.98	Positive	Supported
Eco-design → Corporate Image	0.19	2.12	Positive	Supported
Pollution → Corporate Image	0.65	6.74	Positive	Supported

The model estimation results reveal the following relationships among research variables. Relationship between all of the constructs of green supply chain management and corporate image is positive and significant. The T-value of these estimates is less than 2 (Liao et al., 2008). This indicates that all of the constructs of green supply chain management have a positive impact on the corporate image. Hence H11, H12, H13, H14, H15 and H16 are supported.

For testing the main hypothesis, we used Spearman's Correlation Coefficient and linear regression. Table 5 contains the inter-correlation of green supply chain management and corporate image. It is seen that green supply

chain management is positively correlated with corporate image.

Tables 6 and 7 show the results of linear regression. Table 6 is the ANOVA table. This table indicates that the regression model predicts the outcome variable significantly well. Because the Sig. of the test is less than 0.05, and indicates that, overall, the model applied can statistically significantly predict the outcome variable.

Table 7, provides us with information on each predictor variable. This gives us the information we need to predict Corporate Image from GSCM. We can see that both the constant and income contribute significantly to the model (by looking at the Sig. column).

Table 5: Correlations between GSCM and corporate image

			GSCM	Corporate Image
Spearman's rho	GSCM	Correlation Coefficient	1.000	0.680**
		Sig. (2-tailed)	.	0.000
		N	165	165
	Corporate Image	Correlation Coefficient	0.680**	1.000
		Sig. (2-tailed)	0.000	.
		N	165	165

Table 6: The results of linear regression: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.763	1	6.763	46.833	0.000 ^a
	Residual	23.540	163	0.144		
	Total	30.303	164			

Table 7: The results of linear regression: Coefficients^a

Model		Unstandardized Coefficients		Standardize Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.705	0.157		23.656	0.000
	GSCM	0.232	0.034	0.472	6.843	0.000

a. Dependent Variable: Corporate Image

By looking at the B column under the Unstandardized Coefficients column, we can present the regression equation as:

$$\text{Corporate Image} = 3.705 + 0.232 (\text{GSCM})$$

The results indicate that green supply chain management has a positive impact on corporate image. In other words, better performance in green supply chain management will lead to higher corporate image. Hence H1 is supported.

DISCUSSION

According to the model estimation results, a positive and statistically meaningful relationship was found between each dimension of green supply chain management and corporate image. So our main hypothesis is supported and a positive and statistically meaningful relationship was found between green supply chain management and corporate image. We can conclude that green supply chain management can improve corporate image. Of the six dimensions of green supply chain management, corporate image was more affected by green purchasing, cleaner production, recovery and pollution dimension.

In this particular model of study, GFI value was found to be 0.91. AGFI goodness-of-fit value, similar to GFI, was found as 0.92. This indicates that GFI and AGFI goodness-of-fit values for the theoretical model are appropriate for obtained data. On the other hand, RMSEA value was detected as 0.03. This indicates that only a few variances and covariances were not explained by the structured theoretical model.

CONCLUSION

While the impact of variables such as customer satisfaction, service quality, value, awareness of organization's products, perceptions about culture, personality of the focal firm, and general expectations on corporate image has received closer scrutiny, green supply chain management's implications for promoting corporate image have not been an explicit focus of the literature. This research provided some empirical support for the key role of green supply chain management in corporate image. The results of this study showed that green supply chain management is a strong antecedent for corporate image. Green supply chain

management plays an important role in improving corporate image. So we can improve corporate image, by improving the effective dimensions of green supply chain management. Of the six dimensions of green supply chain management, corporate image was more affected by green purchasing, cleaner production, recovery and pollution dimension.

In green purchasing dimension, we can improve corporate image by:

- ✓ Developing environmental and technical standards for purchasing raw materials
- ✓ Providing design specification to suppliers
- ✓ Cooperation with suppliers for environmental objectives
- ✓ Environmental audit for suppliers
- ✓ Controlling Suppliers' ISO14000 certification

In clean production dimension, we can improve corporate image by:

- ✓ Developing environmental and technical standards for purchasing machinery, equipments and instruments
- ✓ Using advanced technologies for optimizing energy consumption
- ✓ Training right consumption patterns of energy
- ✓ Reduction of energy consumption
- ✓ Adjust necessary rules for reduction of materials consumption
- ✓ Continuous checkup of machinery and instruments erosion
- ✓ Existence of advanced carrying system to reduce wastes
- ✓ Green Packaging

In recovery dimension, we can improve corporate image by:

- ✓ External waste recovery
- ✓ Internal waste recovery
- ✓ Product recovery at the end of its life cycle

In pollution dimension, we can improve corporate image by:

- ✓ Reducing soil, water and air pollution by products
- ✓ Reducing soil, water and air pollution by wastes
- ✓ Reducing soil, water and air pollution in the process of Internal

REFERENCES

- Abd-El-Salam, E. M., Shawky, A.Y. and El-Nahas, T. (2013). The Impact of Corporate Image and Reputation on Service Quality, Customer Satisfaction and Customer Loyalty: Testing the Mediating Role (Case Analysis in an International Service Company). *The Business and Management Review*, 3 (2), pp. 177-196.
- Agarwal, N. and Tyagi, N. (2011). Green HRM – Prospective and Challenge, Proceeding of 2nd International Conference on Green Business Strategy, January 06-07, India.
- Arena, U., Mastellone, M. L. and Perugini, F. (2003). The Environmental Performance of Alternative Solid Waste Management Options: A Life Cycle Assessment Study. *Chemical Engineering Journal*, 96 (1/3), pp. 207-222.
- Beamon, B. (1999). Designing the Green Supply Chain. *Logistics Information Management*, 12 (4), pp. 332-342.
- Bravo, R., Montaner, T. and Pina, J. M. (2009). The Role of Bank Image for Customers versus Non-Customers. *International Journal of Bank Marketing*, 27 (4), pp. 315-334.
- Caruana, A. and Chircop, S. (2000). Measuring Corporate Reputation: A Case Example. *Corporate Reputation Review*, 3 (1), pp. 43-57.
- Darnall, N., Jolley, G. J. and Handfield, R. (2008). Environmental Management Systems and Green Supply Chain Management: Complements for Sustainability? *Business Strategy and Environment*, 17(1), pp. 30-45.
- Fortes, J. (2009). Green Supply Chain Management: A Literature Review. *Otago Management Graduate Review*, 7, pp. 51-62.
- Ghalandari, K., Babaeinia, L. and GhorbaniGhaleJogh, M. (2013). The Moderating Effects of Corporate Image on the Relationship between Perceived Justice Dimensions and Consumer Attitudes and Repurchase Intentions from Online Shopping in Iran. *Research Journal of Applied Sciences, Engineering and Technology*, 5 (1), pp. 303-318.
- Guide, V. D. R. and Srivastava, R. (1998). Inventory Buffers in Recoverable Manufacturing. *Journal of Operations Management*, 16 (5), pp. 551-568.
- Gungor, A. and Gupta, S. M. (1999). Issues in Environmentally Conscious Manufacturing and Product Recovery: A Survey. *Computers and Industrial Engineering*, 36 (4), pp. 811-853.
- Hervani, A. A., Helms, M. M. and Sarkis, J. (2005). Performance Measurement for Green Supply Chain Management. *International Journal of Benchmarking*, 12 (4), pp. 330-353.
- Ho, J. C., Shalishali, M. K., Tseng, T. and Ang, D. S. (2009). Opportunities in Green Supply Chain Management. *The Coastal Business Journal*, 8 (1), pp. 18-31.
- Hsu, C. W. and Hu, A. H. (2008). Green Supply Chain Management in the Electronic Industry, *International Journal of Environmental Science and Technology*, 5 (2), pp. 205-216.
- Hussey, D. and Eagan, P. D. (2007). Using Structural Equation Modeling to Test Environmental Performance in Small and Medium-sized Manufacturers: Can SEM Help SMEs? *Journal of Cleaner Production*, 15 (4), pp. 303-312.
- Hwa, T. (2001). Green Productivity and Supply Chain Management, Conference on Enhancing Competitiveness Through Green Productivity, China, 25-27 May.
- Jia, X. M. and Liu, L. (2008). Comparing the Structural Equation Model with the Simultaneous Equation Model. *Application of Statistics and Management*, 27 (3), pp. 439-446.
- Khasnabis, S. and Choudhury, M. (2011). Green HR, Proceeding of 2nd International Conference on Green Business Strategy, January 06-07, India.
- Kim, Y.-E. and Lee, J.-W. (2010). Relationship between Corporate Image and Customer Loyalty in Mobile Communications Service Markets. *Africa Journal of Business Management*, 4 (18), pp. 4035-4041.
- Liao, Sh.-H. S., Fei, W.-Ch. and Liu, Ch.-T. (2008). Relationships between Knowledge Inertia, Organizational Learning and Organization Innovation. *Technovation*, 28 (4), pp. 183-195.
- Lund, R. T. (1984). Remanufacturing. *Technology Review*, 87, pp. 18-23.
- Ninlawan, C., Seksan, P., Tossapol, K. and Pilada, W. (2010). The Implementation of Green Supply Chain Management Practices in Electronics Industry, Proceedings of the International Multi Conference of Engineers and Computer Scientists, Hong Kong, March 17 – 19.
- Paksoy, T., Özceylana, E. and Weber, G.-W. (2011). A Multi Objective Model for Optimization of a Green Supply Chain Network, *Transaction on Evolutionary Algorithm and Continuous Optimization*, 2, pp. 84-96.
- Rao, P. (2004). Greening Production: A South-east Asian Experience. *International Journal of Operations and Production Management*, 24 (3), pp. 289-320.
- Rouhi, A., Tavangar, A. and Mohammadi, M. (2013). The Impact of Financing Method on Performance of Private Banking Industry. *Management Science Letters*, 3 (2), pp. 547-554.
- Salam, M. A. (2008). Green Procurement Adoption in Manufacturing Supply Chain, Proceedings of the 9th Asia Pasific Industrial Engineering and Management Systems Conference, 3-5 December, Indonesia, pp.1253-1260.
- Shang, K.-Ch., Lu, Ch.-Sh. and Li, Sh. (2010). A Taxonomy of Green Supply Chain Management

- Capability among Electronics-related Manufacturing Firms in Taiwan. *Journal of Environmental Management*, 91 (5), pp. 1218–1226.
- Shekari, H., Shirazi, S., Afshari, M. A. and Veyseh, S. M. (2011). Analyzing the Key Factors Affecting the Green Supply Chain Management: A Case Study of Steel Industry. *Management Sciences Letter*, 1 (4), pp. 541-550.
- Sheu, J.-B., Chou, Y.-H. and Hu, Ch.-Ch. (2005). An Integrated Logistics Operational Model for Green Supply Chain Management. *Transportation Research Part E: Logistics and Transportation Review*, 41 (4), pp. 287–313.
- Srivastava, S. (2007). Green Supply-chain Management: A State-of-the-art Literature Review. *International Journal of Management Reviews*, 9 (1), pp. 53-80.
- Taghaboni-Dutta, F., Trappey, A. J. C. and Trappey, Ch. V. (2010). An XML based Supply Chain Integration Hub for Green Product Lifecycle Management, *Expert Systems with Applications*, 37 (11), pp. 7319–7328.
- Veljković, D. and Petrović, D. (2011). The Role of Corporate Image in the Process of Company Takeovers. *Megatrend Review*, 8 (1), pp. 77-94.
- Walton, S., Handfield, R. and Melynk, S. (1998). The Green Supply Chain: Integrating Suppliers into Environmental Management Processes. *International Journal of Purchasing and Materials Management*, 34 (2), pp. 2-11.
- Zeng, S. X., Meng, X. H., Yin, H. T., Tamb, C. M. and Sun, L. (2010). Impact of Cleaner Production on Business Performance. *Journal of Cleaner Production*, 18 (10/11), pp. 975-983.
- Zhu, Q., Sarkis, J. and Geng, Y. (2005). Green Supply Chain Management in China: Pressures, Practices and Performance. *International Journal of Operations and Production Management*, 25 (5), pp. 449-468.
- Zhu, Q., Sarkis, J. and Lai, K.-H. (2007). Green Supply Chain Management: Pressures, Practices and Performance within the Chinese Automobile Industry. *Journal of Cleaner Production*, 15 (11/12), pp. 1041-1052.
- Zhu, Q., Sarkis, J., Cordeiro, J. J. and Lai, K.-H. (2008). Firm-level Correlates of Emergent Green Supply Chain Management Practices in the Chinese Context. *Omega*, 36 (4), pp. 577–591.