

# The Mediating Role of Green Supply Chain Management and the Moderating Role Competitive Intensity in the Relationship between Environmental Orientation and Corporate Performance

Khomsan Laosillapacharoen<sup>1</sup>, Preecha Karuhawanit<sup>2</sup>

<sup>1,2</sup>Graduate School, Suan Sunandha Rajabhat University, Bangkok, Thailand

<sup>1</sup>s56584916034@ssru.ac.th

<sup>2</sup>preecha.ka@ssru.ac.th

**ABSTRACT-** The prime objective of the current study is to explore the nexus between the environmental orientation and the corporate performance. In addition to that the study has examined the mediating role of green supply chain management and the moderating role competitive intensity in the relationship between environmental orientation and corporate performance. The study attempted to understand the way in which the environmental orientation, green supply chain and competitive intensity affect the corporate performance. In order to narrow down the research gap identified; there is need for conducting a comprehensive analysis of the influence on GSCM created by environmental orientation. The study is among the pioneering studies on the issues. So, current study has used SEM-PLS as statistical tool to answer the research questions raised in this study and research objectives envisaged in the current study. The findings of the current study have provided support to with the hypothesized results. This study will be helpful for policymakers and researchers in examining the link between environmental orientation, green supply chain management, competitive intensity and the corporate performance. Further, it gives useful insights from managerial perspective to rectify the supply chain practices for sustaining competitive advantage.

**Keywords:** *Environmental Orientations, Green supply chain management, Competitive intensity, Corporate performance*

## 1. Introduction

Now days, firms are facing increased pressure to fulfill their environmental responsibility because of the different developments such as high social concerns regarding deterioration of ecology and tightened environmental regulations [1]. It is supported by the ethical scholars that the moral reputation of a firm is influenced by its concern towards the environment. However, it is great importance for the firm for achieving and

sustaining success of business [2]. There is need for the researchers to resolve the issue related to the influence on performance created by environmental orientation.

Management's recognition of environmental issues is involved in environmental orientation. Several factors have been documented in previous research studies such as forces of institution and regulations. Other factors include pressure from stakeholder, resources of organization and cultural aspects [3]. These factors can influence the firm to become concerned with the environment. The strategic responses of a firm towards the environment can improve its performance as claimed by the researchers of environmental management [4]. A positive influence on performance has been shown in previous researches by environmental orientation through use of strategic practices related to environment. The focus of previous researches is on the two-way correlation between performance and environmental orientation [5]. Some of the studies have eliminated the implications of performance by environmental orientations from the analysis [6]. There is limited research on this area. Therefore, the issue of the influence the influence on performance environmental practices created by environmental orientation is still not explored at large.

The purpose of this research is to offer great insights to the literature by determining the ways in which the influence on performance is created by environmental orientation considering the market conditions. The use of management practices concerned with the environment has been proposed by this research study in order to take benefit from cross-fertilization. GSCM act as a mediating factor in the influence of the influence on performance created by environmental orientation.

A considerable interest has been gained by GSCM in recent literature and researchers have explored its different implications for managements [7, 8]. Marketing practices can be improved through use

of GSCM related to packaging, designing, and development of products, communication, and its distribution. This results in increased competitiveness for the firm [9]. However, a limited research has been done on this aspect from the researchers of marketing field. The studies conducted on GSCM done by the non-marketing researchers have eliminated the factor of environmental orientation, which is a crucial strategic variable. The environmental practices of a firm are related to environmental orientation in a close way [1]. In order to narrow down the research gap identified; there is need for conducting a comprehensive analysis of the influence on GSCM created by environmental orientation. The implications of performance GSCM is crucial and timely factor [10]. Contextual conditions have important role, which need to be understood in converting the environmental orientation into expected results. Corporate performance improves through supply chain practices, which are responsible towards ecology. This study influences the operational management researchers to carry out analysis on the areas, which have been neglected. Further, it gives useful insights from managerial perspective to rectify the supply chain practices for sustaining competitive advantage.

## 2. Theoretical Framework and Hypotheses Formulation

The conceptual framework has been depicted in figure 1. It presents the relation among the variables (GSCM, environmental orientations, and corporate performance). The influence of the influence on performance created by environmental orientation has been mediating by the GSCM activities in this research. The relationships proposed in this research are in line with the study of Chen, et al. [11] which is because cognitive responses of management to the environmental issues is involved in the environmental orientation. By working on the strategies, the influence of environmental orientation of performance can be realized. There is need for transforming the perceptions of managers to initiatives before the impact that is created on performance [12]. Research studies conducted on these relationships, which have been proposed will add to the limited research available on the areas of environmental orientation. It has been mentioned previously that the researches have eliminated the role of environmental orientation during analysis or studied the bi-variant association among the variables (performance and orientation) [13].

### 2.1. Integration of Marketing with GSCM

Different practices related to ecology are involved in GSCM that are developed for incorporating

environmental concerns in the decision-making at every step of business from sourcing to logistics management [14]. The incorporation of concerns related to environment in the flow of products in the organizational processes and beyond the boundaries of organization is involved in GSCM. GSCM is a critical tool for the manufacturers to deal with the stakeholders' concern related to the environment [15]. In the marketing field, the issues of GSCM are under investigations. The integration of environmental concerns into the management of supply chain can bring competitiveness to the organization and its marketing practices [16]. The association between supply chain management and marketing and its expected outcomes can increase the concern towards environment for staying at competitive edge.

There is limited research on GSCM. The practices, which are considered important in GSCM, differ in the researches. It has been demonstrated by a current research on the manufacturing industry of China that three core activities are involved in GSCM. These include customer cooperation, green purchase and recovery of investment [17]. A valuable reference is depicted by these three activities to study GSCM in this research. In GSCM, the negative impacts on the environment by its inbound logistical activities are minimized through green purchase. The suppliers are provided with the specifications of design and environmental requirements are incorporated for the items purchased. These are the typical examples of green purchasing.

The cooperative endeavors among the customers and firm for reducing the negative influence created on environment through outbound logistical activities are involved in customer cooperation. Such type of cooperation involves customer collaboration for achieving design, packaging, and production, which are eco-friendly. The concept of investment recovery is related to the use of recycling, reselling, redeployment by the firm to make use of its products and materials in an optimum way. The aim is to gain revenues from surplus assets or resources, which are underutilized. According to Ahmed and Najmi [18], investment recovery is essential for activities related to the reuse of materials and products such as reverse logistics. Based on the literature the study have drawn the following hypothesis

H1: Internal environmental orientation is in significant relationship with the corporate performance.

H2: External environmental orientation is in significant relationship with the corporate performance.

### 2.2. Influence on GSCM by Environmental Orientation

Ahmed, et al. [19] The strategic orientation of a firm can be regarded as value resource (intangible) that directs towards strategic activities and promotes performance from the resource-based view [20]. Evidence has been found by previous researches on business and marketing that orientation leads to strategy development. It has been demonstrated by Murray, et al. [21] that strategic activities are carried out in pricing, marketing communication and product development by the firms having high level of marketing orientation. In the similar way, [22] found that environmental orientations (internal and external) are important indicators of the environmental strategies undertaken by a firm in the marketing perspective.

The practices of firm related to environment are determined by the environmental orientations (internal and external) in the marketing area. Empirical and theoretical support has been provided for the positive influence on environmental practices created by environmental orientation such as GSCM [23]. There is limitation on the positive influence created by environmental orientations (internal and external) on GSCM. This is because of the origin of orientation from two sources. This suggests that the influence on GSCM can be attained from two different ways. Further discussion has been made as below:

It has been suggested by the learning theory of organization that the influence of internal environmental orientation on GSCM is linked with the learning and sharing of knowledge in intra-organization among the members. The internal environmental orientations can be regarded of great value for firm and competency from this perspective. Corporate leaders out of their vision towards the environment initiate these strategies. The personal vision of the leaders penetrates across the firm. It has been suggested by the previous analysis that firm members can develop collective concern towards the environment through internal environment orientation. Moreover, this motivates them to adopt ways for reducing the impact of their operations on environment [24]. Basing on the literature, we have proposed the following hypothesis

H3: Internal environmental orientation is in significant relationship with the green purchase.

H4: Internal environmental orientation is in significant relationship with the customer cooperation.

H5: Internal environmental orientation is in significant relationship with the green investment recovery.

The influence of external environmental orientation is well explained by institutional theory. There is need for firms to deal with certain limitations set by different institutions as per institutional theory. When the operations are carried out by the firms

within the limitations set by these institutions, the stability improves resulting in the survival of organizations. These institutions can be regarded as external stakeholders imposing norms and regulations through formal and informal channels for the firms to deal with the natural environment. According to this perspective, the management of organizations has to take action as per the demands of these salient external stakeholders in relation to the natural environment. This leads to the engagement of firms in pro-environmental activities such as GSCM. The definition of external environment orientation given by Suryanto, et al. [25] lies with this managerial perception. A positive influence on GSCM has been exerted by orientation. The following research hypotheses have been developed based on the above discussion:

H6: External environmental orientation is in significant relationship with the green purchase.

H7: External environmental orientation is in significant relationship with the customer cooperation.

H8: External environmental orientation is in significant relationship with the green investment recovery.

### *2.3. Impact of GSCM on Corporate Performance*

Different constraints are set by the social and government institutions regarding the degradation of environment. The firms need to respond accordingly. The NRBV (semi natural resource-based view) was introduced by Younis, et al. [26], which suggests that environmental considerations should be incorporated by firms in the strategic planning. The researcher claimed that the ability of firms to deal with uncertainties is enhanced resulting in improved corporate performance.

Several investigations have supported this postulation, which were based on developed and developing countries. It is believed by the supporters of NRBV that high performance is achieved by firms when they reduce their environmental impacts by reducing the risk of their operations to the surroundings. Moreover, firms are able to serve customers who have concern towards environment; this improves their reputation. The marketing advantages are attained by customers along with reduction in cost linked with innovations [27].

It has been argued by some scholars in supply chain management that long-term performance can be superior for a firm when improvements are made in managing environmental issues [28]. Short-term benefits or profitability cannot be achieved by GSCM because of the high investment. A recent research conducted by Fahimnia, et al. [29] on the manufacturing industry

of China found that the corporate performance improves through GSCM (Kościelniak, 2018). The following research hypotheses have been developed based on the literature studied and their findings:

H9: Green purchase is in significant relationship with the corporate performance.

H10: Green customer cooperation is in significant relationship with the corporate performance.

H11: Green investment recovery is in significant relationship with the corporate performance.

#### 2.4. Role of Competitive Intensity as Moderator

A situation when there is high-level competition because of a number of competitors in the industry and there are low opportunities for growth is referred as Competitive intensity [30]. Competitive intensity is known as a significant factor contributing to the hostility of the environment operating. Marketing scholars claim that a firm a firm not paying attention to the requirements of customers may not suffer performance deterioration in a low competition scenario. Lack of alternatives keeps the customers stick to the products of the firm. Alternatively, when the competition is high, the firm has to fulfill the requirements of customers to compete with the other firms. The better the customers are satisfied, the more they will stick to the firm products. This can improve the performance and increase in sales. High performance is achieved by the firms who deal with the requirements of customers in an effective manner in a high competitive market as compared with the one having low competition.

According to Fraj, et al. [28] the firms have to be responsive to the market when the competition is high. This is required to be ahead of the rival strategies. Better performance is achieved by the firms satisfying their customers through use of market-oriented strategies. It is claimed that firms experience more salient competitive benefits in highly competitive market, which create more values for the customers as well. Competitive intensity creates a moderating effect on the relation of performance of firm and customer-oriented strategies. The concerns are increasing across the globe towards the environment and demands are increasing for the production of products, which are safe for ecology. The collaboration is made by the firm and its customers to deal with the initiatives for reducing the negative impact of operations on the environment. Customer cooperation results in improved performance and this is less salient in low competition. The following hypothesis has been developed related to the positive mediating impact of competitive intensity on the relation of firm's performance and customer cooperation.

**H12:** Competitive intensity is in significant relationship with the corporate performance.

A positive moderating impact on the relation of customer cooperation and performance has been hypothesized in this study. The impact competitive intensity as a moderator on the association of two activities of GSCM has not been hypothesized such as green purchasing and performance of investment recovery. Competitive intensity is based on the market conditions [31]. There is need for its relevancy with the firm to deal with the requirements of customers rather than suppliers in the green purchase case or controlling internal cost involved in inventory recovery. Because of this reason, the moderating impact of competitive intensity has been hypothesized on the relation of performance and customer cooperation.

**H13:** Competitive intensity moderates the relationship between the green customer cooperation and corporate performance.

### 3. Methodology

To achieve the objective of the current study we have employed a quantitative methodology with the aid of adapted questionnaire. For the analysis purpose the data is collected from the operation, production, and finance managers of firms operating in manufacturing sector of Indonesia. The questionnaire is adapted from the prior findings. The total questions sent to the respondents are 650. However, the total questions received as true respondents are 435. The response rate is 67 percent. The nature of present study is correlational and descriptive. The correlational part determined whether export performance and marketing program are correlated, while descriptive part described the exporters profile and ratings of the subject matter. This research has been formulated on the basis of hypothetic-deductive approach, which is a scientific method. It is consisted of seven steps including problem identification, problem statement, and hypotheses formulation, establishing measures, gathering data, data analysis and interpretation of the findings. The main constituent is the deductive approach, which involves formulation and application of a general theoretical framework for a certain practical case. Using previous researches, a theoretical foundation was designed. In addition, a quantitative survey approach is also employed. In this approach, the study determines the research objectives, develops a research design, determines a valid and reliable instrument of research, survey conduction, data collection and analysis, and interpretation and suggest findings. The nature of present study is cross-sectional i.e. the research took place at a specific time period, since it is convenient for the academicians. An email-questionnaire survey was also developed for data collection, which was then

further used for statistical testing to assess the formulated hypotheses. This method was chosen because it requires less time and cost and cover wide geographical area. Thus the survey research method involves collecting data from the people for a particular case. In other words, the current study is a field study conducted under a natural setting, however a correlational study usually carries out in an environment where researchers do not interfere and let the events happen in a normal setting. The survey conduction is done for generalizing the outcomes. The population already had high validity since the items of the questionnaires were quite relevant and direct to address the items of a dimension.

#### 4. Research Analysis and Discussion

The partial least square is suitable or applicable where the theoretical model is novel or not well explained by theories or the model is complex with number of latent variables and structural paths. Because of the above-mentioned reasons, the current study is employing the smart PLS as this study is among few pioneering studies on this issue with an unexplained structural path. In addition to that the current study has employed two steps PLS mythology This is in line with the studies, there are two main steps in SEM analysis. The first step

combines Confirmatory Factor Analysis (CFA) with the measurement model where the evaluation of the measurement instruments will be assessed through confirmatory factor analysis (CFA); and the second step is structural equation model which specifies the structural relationships among latent variables in the measurement model using a path diagram for the testing of the hypotheses . Based on the items of each construct, a second order measurement model was developed to test for the confirmatory factor analysis. The fitness of the measurement model is assessed through unidimensionality, reliability and constructs validity. Validity is the ability of the instrument to measure what is supposed to be measured for a construct. Validity determines the accuracy of measurement instruments of the variables. Specifically, construct validity makes certain the degree of measurement instruments represents the theoretical variables that they are designed to measure. Construct validity is divided into two types, convergent validity and discriminant validity. (CFA); and the second step is structural equation model which specifies the structural relationships among latent variables in the measurement model using a path diagram for the testing of the hypotheses.

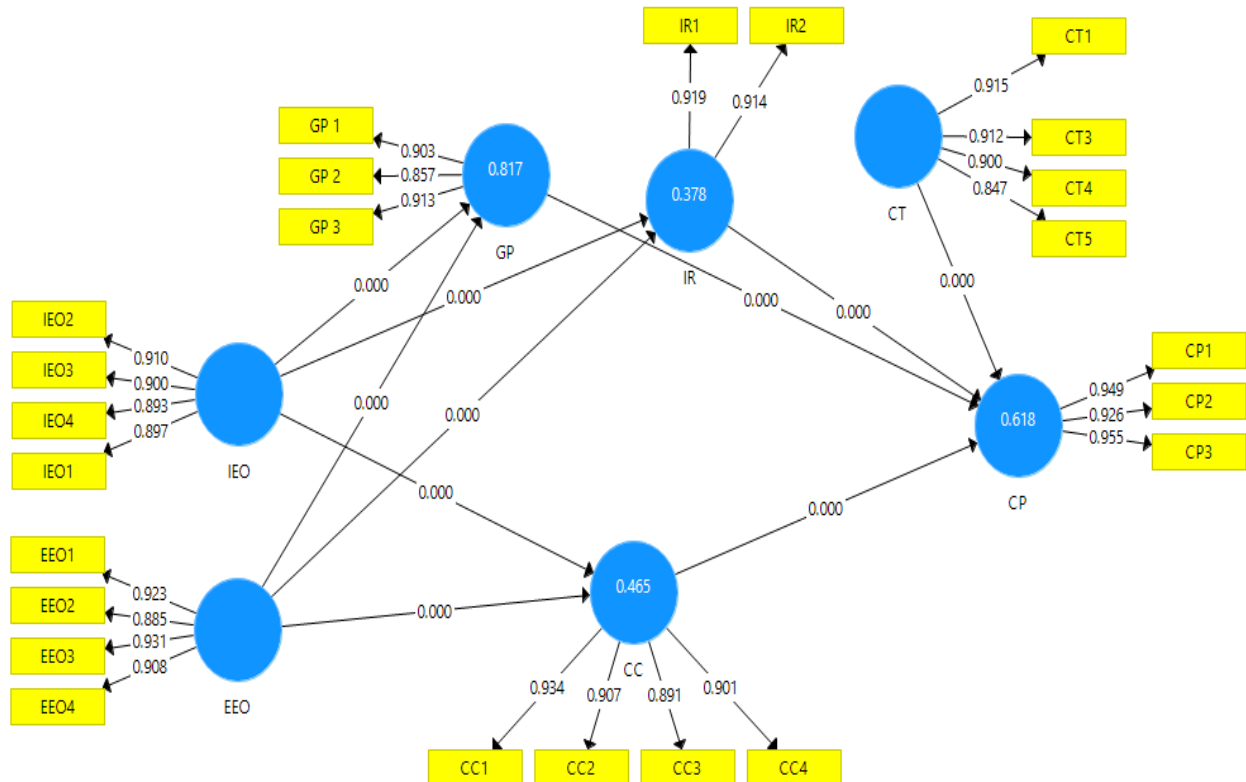


Figure 1. Measurement Model

Table 1. Outer Loadings

	CC	CP	CT	EEO	GP	IEO	IR
CC1	0.934						
CC2	0.907						
CC3	0.891						
CC4	0.901						
CP1		0.949					
CP2		0.926					
CP3		0.955					
CT1			0.915				
CT3			0.912				
CT4			0.900				
CT5			0.847				
EEO1				0.923			
EEO2				0.885			
EEO3				0.931			
EEO4				0.908			
GP 1					0.903		
GP 2					0.857		
GP 3					0.913		
IEO2						0.910	
IEO3						0.900	
IEO4						0.893	
IR1							0.919
IR2							0.914
IEO1						0.897	

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**Table 2.** Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CC	0.929	0.930	0.950	0.825
CP	0.939	0.940	0.961	0.891
CT	0.916	0.924	0.941	0.799
EEO	0.933	0.935	0.952	0.832
GP	0.870	0.872	0.921	0.795
IEO	0.922	0.922	0.945	0.810
IR	0.810	0.810	0.913	0.840

Discriminant validity refers to the extent to which different measures of different constructs are distinct from each other's. In the present study, discriminant validity was established by comparing

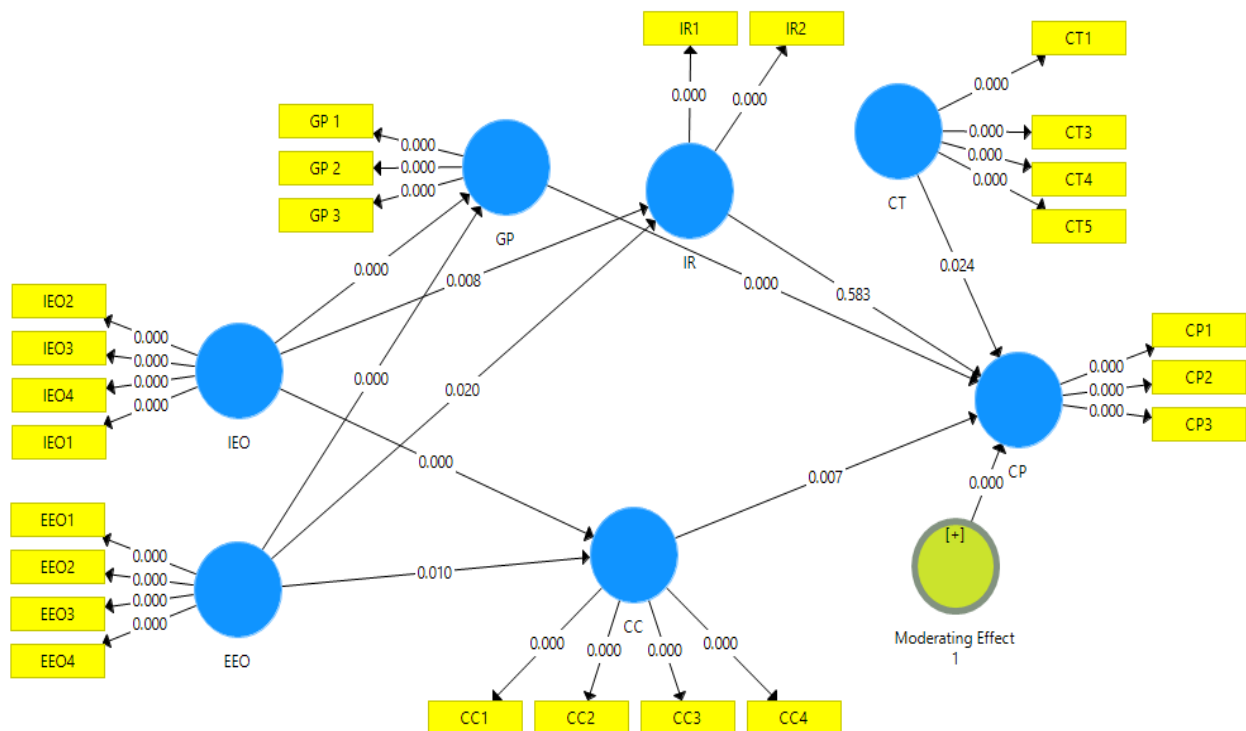
the items loadings with cross-loadings as presented in Table 1. To actualize this, experts on path modelling [32, 33] have suggested that all the items loadings should exceed the cross-loadings

**Table 3.** Discriminant Validity

	CC	CP	CT	EEO	GP	IEO	IR
CC	0.908						
CP	0.629	0.944					
CT	0.871	0.658	0.894				
EEO	0.640	0.782	0.680	0.912			
GP	0.668	0.764	0.691	0.878	0.891		
IEO	0.673	0.781	0.642	0.871	0.871	0.900	
IR	0.883	0.596	0.836	0.591	0.660	0.598	0.917

The next step to the confirmation of reliability and validity is the development and estimation of structural model therefore after confirmation of reliability and validity, the SEM was used to analyze the hypothesis. The direct and indirect effect was examined. Indirect effect was examined to check the mediation. In this process, the p-value was considered. While analyzing the data, 0.05 minimum level of p-value was considered to test the hypothesis. After ascertaining the measurement model, the present study assessed the structural model. In doing so, the present study employed standard bootstrapping procedure with 500 bootstraps samples and 249 cases to determine the significance of the path coefficients. This was carried out by following the guidelines provided by

the eminent scholars in their recent studies). According to the direct results, it is shown that all hypothesis has a p-value less than 0.05. Thus, the hypothesis 1 related to supply chain financial risk and supply chain management is significant, and results of the second hypothesis is also in consistent with the proposed hypothesis as the supply chain operational performance is in significant positive relationship with supply chain performance. The direct results of the current study are shown in table 4 and are mapped in figure 2.



**Figure 2.** Structural Model

**Table 4. Direct Effect**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
CC -> CP	0.247	0.243	0.092	2.691	<b>0.007</b>
CT -> CP	0.224	0.231	0.099	2.260	<b>0.024</b>
EEO -> CC	0.221	0.229	0.086	2.564	<b>0.010</b>
EEO -> CP	0.314	0.313	0.075	4.172	<b>0.000</b>
EEO -> GP	0.493	0.500	0.106	4.667	<b>0.000</b>
EEO -> IR	0.288	0.297	0.124	2.323	<b>0.020</b>
GP -> CP	0.556	0.551	0.088	6.285	<b>0.000</b>
IEO -> CC	0.481	0.475	0.097	4.946	<b>0.000</b>
IEO -> CP	0.346	0.340	0.085	4.065	<b>0.000</b>
IEO -> GP	0.441	0.435	0.106	4.147	<b>0.000</b>
IEO -> IR	0.347	0.340	0.131	2.652	<b>0.008</b>
IR -> CP	-0.054	-0.052	0.098	0.549	<b>0.583</b>

Along with the direct relationship between supply chain operational performance and supply chain management, the current study is also interested in investigating the moderating role of supply chain operational performance in the relationship between supply chain financial risk and supply

chain management. The results of the moderating effect of corporate cash holdings is shown in the table 4 . These results of moderation show that for both mediation hypothesis, the t-value is above 1.96 and p-value is below 0.05 which accept H13.

**Table 5. In-Direct Effect through Moderation**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Moderating Effect 1 -> CP	0.169	0.167	0.035	4.763	<b>0.000</b>

PLS-SEM structural model assessment recommends another important criterion; that is the R-Squared value assessment. The R-square is also called coefficient of determination. According to various scholars the r-squared value represents the

proportion of variation in the dependent variable(s) that could be explained by one or more predictor variable The R-squared value obtained for the present study is reported in Table6

**Table 6. R-Square**

	R Square
CC	0.465
CP	0.618
GP	0.817
IR	0.378

## 5. Conclusion

The performance implications of environmental orientations are added to literature by this research study. Researchers and practitioners have conducted debate on the ways in which firm adopt environmental orientation that improves their competitiveness. There is not sufficient literature available on this area until now [34]. The internal and external environmental orientations have been demonstrated by this research along with a positive influence created on corporate performance. The

research has investigated the way in which adoption of GSCM strategies including green purchasing, investment recovery and customer cooperation has influenced the corporate performance. The general concept of NRBV has been supported empirically by the results. Firms have to act green because of the environmental concerns. The relevancy of supply chain with the marketing activities such as designing, packaging, marketing of the product, the role of moderator directs towards the advantages of adopting cross disciplinary technique for investigating the way in



which performance can be improved through environmental orientation [16]. It is crucial to know the influence of environmental orientations (internal and external) on the corporate performance. It has been revealed by this research that an indirect impact on the corporate performance is exerted by internal environmental orientation. This influence is created through the three main activities of GSCM. However, the influence on corporate performance by external environmental orientation is mediating through customer cooperation and green purchase rather than investment recovery.

External environmental orientation has not a significant impact on recovery of investment, which is not a new thing as this activity of GSCM is linked with the activities of firm, which are focused on nature internally. Internal environmental orientation is related to the values of environment, which are shared among the members of a firm. The influence on environmental activities of corporation should be precise and embedded rather than external environmental orientation, which is pragmatically driven. Irrespective of the difference in the influence of internal and external dimension of environmental orientations, these have a positive impact on the performance of corporation. The observation of Closs, et al. [16] has been corroborated with the analyzed impact of environmental orientation (internal and external) on different activities of GSCM. This claims that mixed motivations characterize firms including considerations for competition, organizational ethics for environment and external legislative.

Contributions have been made to the literature on GSCM by this research. Over recent years, an increased attention has been received in this area. GSCM is regarded as a main initiative of an organization, which reflects the concerns of an organization towards the environment in the development of its strategies. Long-term sustainable growth is achieved by the firms involved in green practices of business. The contributions to literature have been made in two main ways. The first involves the evidence of influence of GSCM on corporate performance positively using a sample of firms working in the manufacturing industry of China. The second contribution is the recognition of GSCM as antecedent. Most of the previous researches conducted on GSCM were based on the importance of GSCM and exploring its main components along with its impact. The antecedents of GSCM at firm level have been examined relatively low. This gap has been filled by this research, which has incorporated both the internal and external dimensions of environmental orientations. These are the important components for adoption of GSCM strategies by a firm. The concept of these two orientations has been cleared by this research

and their influence on major activities of GSCM. Moreover, the influence on GSCM by environmental orientation indicates the ideology of leaders or senior manager's act as salient characteristics for the firm to respond towards the environment. This leads to the penetration of ideology across the entire supply chain. The previous researches of environmental management are limited to the performance implications related to the practices of management at level of corporations in developed nations [35]. This research study has shown the impact in the supply chain management particularly in the development economy of Asia.

### *Practical Implications*

- Managers are realized with the importance of adopting a corporate culture, which is concerned with the environment. This aids in improving the ability to identify the demands of external stakeholders concerning with the environment.
- There is need for senior executives of corporations to realize the importance of internal environmental orientation in developing suitable practices of GSCM. The top management has a strong influence within a firm. The top management should play its role in a responsible way for supporting the integration of this orientation.
- The involvement of top management in the development of strategies concerned with the environment can play a significant role such as training regarding environmental issues, communication, setting goals and contributing towards the environment by employee motivation through reward-based strategies.
- The implementation of environmental policies should be ensured by the top executives in response to the external needs.
- Employees are supported through the education and socialization for internalizing the environmental ethics supported by leaders. Employees can also foresee the commitment of top management towards a sustainable growth of corporation.

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