



IMPACT OF GREEN SUPPLY CHAIN MANAGEMENT ON FINANCIAL AND ENVIRONMENTAL PERFORMANCE: MEDIATING ROLE OF OPERATIONAL PERFORMANCE AND THE MODERATING ROLE OF EXTERNAL PRESSURES

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ABSTRACT. Background: Green supply chain management (GSCM) practices are considered as vital practices in tackling environmental issues faced by firms. This study examines the relationship between GSCM, environmental and financial performance of firms. Further, the study examines the mediating role of operational performance between the relationships of GSCM-environmental performance and GSCM-financial performance. Additionally, the moderating role of external pressures (regulatory and customer pressures) has been examined on the relationship of GSCM and operational performance.

Methods: Data from 277 executives working in different industries of Pakistan (where GSCM practices have been adopted) has been collected for the study.

Results: The results of the mediated regression analysis confirm the partial mediation of operational performance between GSCM, environmental and financial performance. The results of moderated regression analysis confirm that presence of external pressures enhances the relationship between GSCM and operational performance.

Conclusions: These results suggest that the adoption of GSCM practices in Pakistan can be fruitful for the companies. Mandatory requirement by regulatory authorities can also be helpful in adoption of the GSCM practices which ensure environmental performance of firms and consequently the betterment of overall environment.

Key words: Customer Pressures, Financial Performance, Environmental Performance, Green Supply Chain Management, Regulatory Pressures.

INTRODUCTION

Environmental issues including rapid depletion of natural resources, contamination of the atmosphere, global warming and decline in biological diversity leads to the degradation of the ecosystem. Last few decades have seen a massive rise in mass awareness regarding these environmental issues resulting in an ever-increasing demand for eco-friendly products and systems. Modern day organizations now clamour for systems and mechanisms that make them “environment friendly” and help them in positioning themselves as “Green”.

One among many such mechanisms is green supply chain management (GSCM).

Green supply chain management (GSCM) is a process that involves management of both upstream and downstream supply chain through green supply chain management practices in order to minimize the general effect of forward as well as reverse supply flows on the environment [Solér et al., 2010].

These practices can be classified as: (i) internal practices and (ii) external practices [Zhu et al., 2005]. However, research suggests that in order to study GSCM in a better way,

a uni-dimensional green supply chain management (GSCM) construct is more appropriate that includes all its dimensions [Zhu et al., 2013].

Since the seminal work in the area of GSCM, researchers and practitioners have been examining the antecedents of GSCM and its effect on different organizational level outcomes. Among others, market performance, financial performance and top management commitment [Blome et al., 2014], and institutional pressures [Zhu et al., 2013] have been identified as key antecedents of GSCM. Likewise, green procurement, green supplier development and supplier performance [Blome et al., 2014] and organizational performance [Diab et al., 2015] have been identified as key outcomes of GSCM.

Organizational performance being the ultimate objective of firm is the most important outcome for any system. More recently, organizational performance has been divided into two sub parts including financial and environmental performance. Previous research has linked GSCM with both financial [Feng et al., 2018; Khan, Qianli, 2017] and environmental performance [Seman et al., 2019]. However, the results of existing literature on these relationships are mixed, inconsistent and confusing, thus requiring more in depth analysis to identify the possible linkages (direct or indirect) between the variables.

Inconclusive results of the direct relationship provide a guideline to look for the mechanisms that can help in understanding the indirect relationship between GSCM, environmental and financial performance. In line to this thought, we present operational performance as a possible underlying mechanism that can help in understanding the relationship between GSCM, environmental and financial performance in a better way. GSCM practices enhance the operational efficiency that can ultimately help in improving financial and environmental performance. Previous research also suggests that operational efficiencies caused by GSCM can lead to better organizational performance [Feng et al., 2018].

Furthermore, evidence suggests that the adoption of environment friendly strategies by organizations is a reaction to the external stakeholders including customers and regulatory authorities [e.g. see, Lee et al., 2012]. This stance appears logical as significant initiatives are being taken at global level to ensure environment protection. For instance, United Nations (UN) agenda for sustainable development 2030 emphasises on achievement of healthy environment and same is evident in UN sustainable development goals (goal number 6: clean water and sanitation, goal number 7: affordable and clean energy and goal number 13: climate action). Thus, the legal framework of countries and pressures from legal authorities and customers can be influential in adoption of such strategies.

Researchers have also suggested studying GSCM and its relation with organizational performance in context of external pressures. Keeping in view these practical considerations and calls for research, we examine external pressures as moderator between GSCM and operational performance of organization. The purpose of this study is thus three-fold: (i) to examine the relationship between GSCM, environmental and financial performance (ii) to examine operational performance as a mediator between GSCM, environmental and financial performance and (iii) to examine the moderating role of external pressures on relationship of GSCM and operational performance.

Our study adds to the existing body of knowledge in several different ways. Firstly, given the inconclusive nature of results on the relationship between GSCM, environmental and financial performance, it is important to understand the mechanisms that can help in explaining these relationships. We thus examine operational performance as a mediator between these relationships. Mediation analysis has not gained much attention by researchers in this area. Although, Feng et al., [2018] have examined the mediating role of operational performance between GSCM and financial performance, the mediating role of operational performance between GSCM and environmental

performance is yet to be explored in literature. Secondly, we add to the existing body of knowledge by examining the moderating role of external pressures on the relationship of GSCM and operational performance. By doing so, we also respond to the call for future research by Feng et al. [2018]. Lastly, the context of our study is different from any previous research in the area of GSCM. Our study is concerned with an emerging economy i.e. Pakistan. So, we also add to the existing literature by reporting the results from a different context.

Rest of the paper follows this sequence: Next section describes literature review and hypotheses development followed by methodology. After that, results are explained and discussed. Paper ends with a conclusion, implications and directions for future research.

LITERATURE REVIEW

Green Supply Chain Management and Financial Performance

Within the perspective of GSCM, companies are currently adopting the practices of environmentally friendly supply chain as a priority for both environmental sustainability and financial performance. It is possible to achieve better financial results through cost and resource management.

Researchers have revealed that GSCM practices have a positive association with the economic performance of an enterprise [Rao, Holt, 2005]. Sustainable business activities are helpful in increasing revenue, operating cash flows and pre-tax income [Ameer, Othman, 2012].

GSCM can economically boost the performance of the firm in two aspects [Hart, 1995]. First, by cutting waste costs and energy costs as part of GSCM, companies can gain financial benefits directly. Second, by enhancing their commitment and business reputation through environmentally friendly practices, companies can increase financial benefits from indirect ways [Schmidt et al.,

2017]. Greater environmental performance can be attained through the implementation of pollution prevention techniques, this leads to zero waste which ensures that no pollution control costs and high waste disposal costs are expended, which means lower costs to tackle environmental waste and for waste treatment due to the usage of toxic substances [Klassen and McLaughlin, 1996].

Cross country and cross industry evidence suggests that green practices like green supply chain management (GSCM) improves the financial and economic position of a business when implemented appropriately, not always raising revenues, but certainly improving economic performance [Zhu et al., 2010]. However, the empirical studies on the subject shows mixed results too regarding the direction of the relationship between GSCM and financial performance. For instance, Sezen and Çankaya [2013] found no significant associations between adoption of GSCM/green activities and enhancement in financial outcomes for firms in Turkey. Likewise, studies suggest that GSCM does not have a direct impact on economic growth but can indirectly enhance it [Zhu et al., 2010]. The meta-analysis of Golicic and Smith [2013] also confirms the inconclusive results on the subject. Despite of the inconclusive evidence, the positive relationship between GSCM and financial performance is well supported by the theory. From Pakistani perspective, Jawaad and Zafar [2019] reported optimistic effects of GSCM on financial performance. They indicated that due to higher prices imposed by suppliers sometimes for their environmental friendly raw materials, packaging and, in general, fewer suppliers in the market, manufacturers experience lower cost efficiency and substantial increase in EBITDA in this sector at the beginning stages of implementation of GSCM. Keeping in view the above discussion, we propose that

Hypothesis 1: Green supply chain management (GSCM) is positively related to financial performance.

Green Supply Chain Management (GSCM) and Environmental Performance

GSCM practices are progressively known as a systematic and extensive mechanism for achieving better environmental performance. The literature provides substantial proof that GSCM enhance environmental performance of different industries [Kumar et al., 2019; Zhu et al., 2013].

The reduction of hazardous materials and solid waste through the use of sustainable raw materials with organizational support ensures that environmental contamination is reduced.

Environmental performance examines the company's ability to decrease pollution, improve efficiency and avoid the use of dangerous substances. The GSCM activities include all efforts to limit the negative environmental effects of a firm's products and services. Such efforts have a beneficial impact on enhancing environmental performance by decreasing the usage of solid wastes or liquid wastes and dangerous substances, reducing the occurrence of ecological accidents and also improving health [Eltayeb et al., 2011].

GSCM eliminates damage to the environment because collaboration among functions, suppliers as well as customers enables to recognize and resolve environmental problems [Wong et al., 2015]. Through collaboration, pollution and waste in manufacturing, transportation procedures and products in use can be decreased by implementing green-design and green-packaging. Researchers [e.g. Zailani et al. 2012] reported that GSCM if implemented appropriately have strong optimistic impact on environmental outcomes/performance. The basic philosophy behind the green idea is to improve the environmental sustainability, but companies are adopting the green idea as "kill two enemies with one bullet". Because, GSCM can minimize emissions and manufacturing costs, as well as stimulate economic growth, build competitive benefits in terms of customer satisfaction, credibility and positive image, and provide greater opportunities to sell their products to environmentally friendly countries [Khan, Qianli, 2017]. Luthra et al. [2016]

stated that, with the implementation of sustainable design in supply chain management, 80% of environmental impacts could be managed/controlled. Green product design supports product reuse and recycling, which help companies to enhance their environmental performance and also offer opportunities to lower their costs by adopting green design in supply chain management. Thus, we propose that:

Hypothesis 2: Green supply chain management (GSCM) is positively related to environmental performance.

Mediating Role of Operational Performance between GSCM and Financial Performance

With the implementation of various sustainable practices, businesses are increasing their profitability through supply chain operations. Excellent operational performance shows the ability to fulfil customer's demand in the form of time and quick distribution of superior goods and services, waste disposal and operational flexibility in manufacturing processes [Wong et al., 2015].

Product quality, operational efficiency or distribution are the foundation for service quality which leads to financial benefits and customer retention. Operational efficiency helps in cost reduction while at the same time addressing growing customer's needs for eco-friendly high quality products, contributing to greater financial performance. Cost reduction is considered to be the most significant element for businesses to adopt eco-friendly practices in their operations of supply chain.

GSCM activities are not intended to gain profit and shares in new markets but adopted to achieve the objectives of cost reduction as well as resource efficiency though minimizing damage to the environment. It is the improved operational performance which creates new sales, productivity and reduction of costs. In other words, enhanced operational efficiency indirectly improves financial performance [Feng et al., 2018]. Some researchers found that the absence of a systematic relationship between adoption of green supply chain management (GSCM) practices and financial

performance to be a possible obstacle [Stefan and Paul, 2008]. The performance of the firm in terms of profitability can be increased if its operating costs are decreased.

Operational performance improvements lowers the material usage and waste creation and therefore cut the costs of buying and handling or discharging products. Sustainable environmental programs not only enhance resource efficiency, but also enhance financial performance. Sustainable management of companies can boost productivity/competitiveness through greater environmentally friendly-efficiency. The above discussion shows that GSCM enhances operational performance of firms which in turn enhances the financial performance. Thus, we propose that

Hypothesis 3: Operational performance mediates the association of GSCM and financial performance.

Mediating Role of Operational Performance between GSCM and Environmental Performance

Green supply chain management involves product design for re-use, product recycling and reduced energy usages, which improves the use of material and minimize waste in production of goods, thereby enhancing eco efficiency [Green et al., 2012]. By implementing GSCM practices, companies may boost their operational efficiency by reducing the cost, maintaining the quality of products and delivery service [Yusuf et al., 2013].

Manufacturers can maintain a good strategic and economic position in cooperation with their business partners, customers and vendors if they incorporate sustainable development in a way that minimizes the cost [Vachon and Klassen, 2006].

Firms implement environment friendly supply chain in a way that helps them in reducing their environmental/ecological impacts through operational efficiency [Svensson, 2007]. A company's operational

functions confronts environmental issues directly as it is the primary source for operating emissions. Improved operational performance shows the customer satisfaction in the form of low cost products, maintaining the quality of products and delivery service, efficiency and reduction of waste in manufacturing [Wong et al., 2015].

By focusing on environmental friendly design, organizations can fulfil the requirements for green design through green procurement and can gain more opportunities in new markets. It requires coordination with vendors for the procurement of green products and materials/parts.

Effective cooperation leads to improved logistics and new product development functions in response to sudden changes in the market enabling firms to attain higher operational performance, eliminate waste and more efficient use of resources. Improved performance is a major driver for companies looking for the execution of environmentally friendly practices [Zhu et al., 2010, 2013]. GSCM can be used to evaluate product design and manufacturing processes. Proactive management of the environment highlights the use of emissions prevention in production processes rather than of emissions control technologies [Klassen and Whybark, 1999].

Hypothesis 4: Operational performance mediates the association of GSCM and environmental performance.

Moderating Role of External Pressure between GSCM and Operation Performance

Environmental laws and future economic advantages of implementing sustainable policies have driven industries to follow various environmental management practices. Customers and regulators are constantly enforcing the corporations to produce the products that enhance operational efficiency and minimize adverse effects on environment [Kleindorfer et al., 2005].

Companies have to face lower demands from customers and also increased penalties imposed by government, when their eco-friendly practices are doubtful [Klassen, McLaughlin, 1996]. Therefore, it becomes increasingly important for supply chain firms to comply with regulations in order to conduct environment friendly strategies. Green supply chain practices (GSCM) help businesses to have good image by mitigating environmental damage in stakeholder's mind, community, consumers/customers, employees and government. This good image is very essential for customer satisfaction and loyalty as well as staff [Hoffman, 2001]. Successful green practices can improve the relationships between companies and all the stakeholders involved.

Increasing environmental importance has pushed regulators to stringently enforce their environmental policies and regulations [Jayaram and Avittathur, 2015]. It is necessary for firms to incorporate their supply chain processes in order to reduce costs and meet customer and environmental standards. Customers play a major role in the sustainable supply chains. Researchers indicated that pressures from buyer or customer as a driving force for adopting the practices of GSCM. Chavez et al. [2014] concluded that customer pressure is a significant antecedent factor for the formulation of green practices, which then leads to gain operational efficiency.

A number of stakeholders and organizational pressures are important driving factors for businesses to follow environmentally friendly supply/value chain. Regulatory or administrative interference is really a driving force for incorporating GSCM activities [Gonzalez-Benito and Gonzalez-Benito, 2006]. Consumers expect more quality, reliability and value from goods, and with increasing awareness of the environment, this level of pressure generates new business opportunities [Paquette 2005]. Keeping in view the above discussion, we propose that Hypothesis 5: External pressures moderate the relationship of GSCM and operational performance in a way that the relationship will be strong when external pressures are high. The Figure 1 depicts the model of the study.

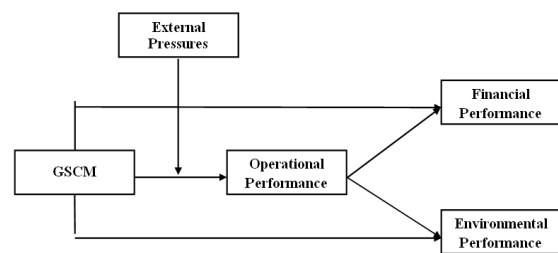


Fig. 1. Research Model

METHODS

Sample and data collection procedure

Data for this study were gathered from executives of several industries like manufacturing, pharmaceutical, logistics, electronic, and agricultural products working in Pakistan. The data were gathered from executives of the private as well as public sector firms. These industries were located in different cities including Islamabad, Rawalpindi, Faisalabad, Sialkot, Lahore, Peshawar, and Mirpur (AJandK). The reason of choosing various industries was that green supply chain management (GSCM) plays its role in every industry and all companies in one industry aren't incorporating GSCM practices. Thus, we had to look for companies around different sectors that implement GSCM. Using convenience sampling, surveys were distributed to 420 executives working in such companies. Participation in the survey was voluntary. Out of 420 surveys distributed, 313 were returned, 36 were not appropriate/ usable and 277 responses were found usable for analysis. So, the response rate of the study is 65%. Demographic characteristics of the sample reveal that 63.5% of the respondents were male. 49.1% of the respondents had either a bachelors (16 year education) degree or above. A large proportion of respondents i.e. 32.9% (n=91) were from logistics while 28.2% (n=78) respondents were from pharmaceuticals, 17.7% (n=49) respondents were from food industries, 12.3% (n=34) were from electronic industries and 9.0% (n=25) were from chemicals industry.

Measures

All study variables were measured using five point likert scale ranging from 1 to 5 (where 1 = Strongly Disagree and 5 = Strongly Agree) except financial performance. For, financial performance the scale was (1= Much worst, 2= somewhat worst 3=Stayed the same, 4= somewhat better, 5= Much better).

Green supply chain management (GSCM)

GSCM was measured using 7 item scale of Zhu et al. (2010). Sample item of the scale include: “In my organization cross-functional cooperation is exercised for environmental improvements”. Cronbach alpha reliability of the scale was .768.

Operational performance

Operation performance was measured using 6 item scale which of Flynn et al. [2010]. Sample item of the scale includes: “Our Company can quickly respond to changes in market demand”. Cronbach alpha reliability of the scale was .767.

Financial performance

Financial performance was measured by using 4 item scale of Flynn et al. [2010]. Sample item of the scale include: “Growth in sales”, “Growth in profit”. Cronbach alpha reliability of the scale was .701.

Environmental Performance

The 5 item scale developed by Zhu et al., (2010), was used to measure the environmental performance. Sample item of the scale includes “Decrease in consumption for hazardous/harmful/toxic materials”. Cronbach alpha reliability of the scale was .773.

External Pressures

We considered external pressures as a sum of regulatory pressure and customer pressure in this study. The external pressures were measured by using 10 item scale developed by Eltayeb and Zailani [2010]. Sample item of the scale are: “there are frequent government inspections or audits on my firm to ensure that the firm is in compliance with environmental laws and regulations”, “Increased awareness of environmental issues among our customers.” Cronbach alpha reliability of external pressure was .857.

Control Variables

We conducted one way-ANOVA in order to identify the control variables. The results are shown in Table 1.

The results as shown in Table 1 indicate that no demographic variable causes distortion in dependent variables. Hence, no demographic variable was controlled in regression analysis.

Table 1. One-way ANOVA

Sources of variations	OP		FP		EP	
	F Statistics	p-value	F Statistics	p-value	F Statistics	p-value
Gender	1.060	.304	.915	.340	.038	.846
Age	1.244	.292	1.676	.156	.951	.210
Education	.503	.733	.530	.713	.628	.643
Industry	2.273	.062	.862	.487	.590	.370
Job Position	1.290	.274	2.038	.089	.964	.428
Experience	.843	.493	1.395	.236	1.793	.130

OP= Operational Performance, FP= Financial Performance, EP= environmental Performance

RESULTS

Descriptive Statistics and Correlation Analysis

The results for descriptive statistics and correlation analysis are shown below in Table 2.

Table 2. Descriptive Statistics and Correlation Analysis

Variable	Mean	Std. Deviation	GSCM	OP	EP	FP	EXP
GSCM	3.68	.666	1				
OP	3.79	.683	.636**	1			
EP	3.77	.717	.361**	.347**	1		
FP	3.79	.727	.680**	.870**	.366**	1	
EXP	3.86	.661	.459**	.499**	.544**	.458**	1

n=277, **=p<0.01, GSCM= Green Supply Chain Management, OP= Operational Performance, EP= Environmental Performance, FP= Financial performance, EXP= External Pressure

The results of correlation analysis as shown in table-2 indicates a positive association between green supply chain and financial performance ($r=.680$, $p < 0.01$), which initially supports H1. The results also show that GSCM is correlated with environmental performance ($r=.361$, $p < 0.01$). This provides initial support for hypothesis H2.

Mediated regression analysis

We used Preacher and Hayes [2008] macro for examining the mediating mechanisms. The results of mediation analysis are shown in Table 3.

Table 3. Mediated Regression Analysis

	B	P-value	LLCI	ULCI
STUDY MODEL-1 (GSCM → OP→FP)				
Direct effect:				
GSCM → FP	0.23	0.000	0.15	0.31
Indirect effect:				
GSCM → OP→FP	0.59		.39	.64
		R²	0.40	
		F-stat	186.6 (0.000)	
STUDY MODEL-2 (GSCM → OP→EP)				
Direct effect:				
GSCM → EP	0.24	0.002	0.08	0.39
Indirect effect:				
GSCM → OP → EP	0.14		.01	.27
		R²	0.41	
		F-stat	62.4 (0.000)	

n=277, GSCM=Green supply chain management, OP=operational performance, FP=Financial performance, EP=Environmental performance

In study model 1, the direct impact of GSCM on financial performance is investigated and the results of regression analysis show that GSCM positively influences the financial performance of the organization ($\beta=0.23$, $p < 0.01$). These results support hypothesis H1. In study model 2, the direct impact of GSCM on environmental performance has been investigated and the outcomes which were obtained from regression analysis show that GSCM positively effects environmental performance ($\beta=0.23$, $p < 0.05$).

In order to verify mediation, the findings of bootstrap for indirect effect are also shown in the table above. The indirect effect of operational performance (OP) lies between LLCI= .39 to ULCI= .64. So, the indirect impact on financial performance due to GSCM is significant. Therefore, it can be concluded that the association between GSCM and financial performance is partially mediated by operational performance. Thus hypothesis H3 is also supported.

The indirect effect of operational performance (OP) on the association of GSCM and environmental performance lies between LLCI= .01 to ULCI= .27. Therefore, the association between GSCM and environmental performance is also partially mediated by operational performance. Thus, hypothesis H4 has also been supported.

Moderated Regression Analysis

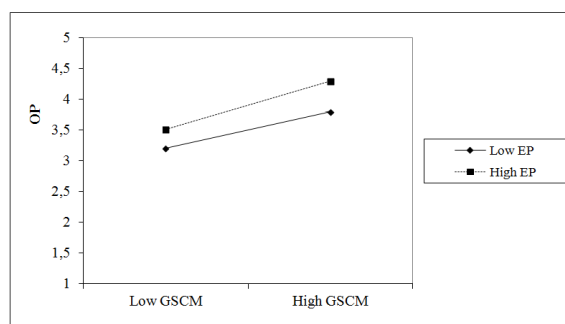
The results of moderation analysis are shown in Table 4.

Table 4. Moderated Regression Analysis

Predictor(s)	OP		
	B	R ²	ΔR ²
Step-I			
GSCM (IV)	.529***		
EXP (Mod)	.271***	.458	.458***
Step-II			
GSCM x EXP	.110*	.467	.009*

n=277. *= $p < 0.05$, **= $p < 0.01$, ***= $p < 0.001$, GSCM=Green supply chain management, EXP= External pressure, OP=operational performance

The table above indicates the results of the moderation regression analysis. The results of regression analysis show that external pressures moderates the relationship between GSCM and operational performance ($\beta = .110$, $p < 0.05$) thus H5 is supported. For better understanding, the interactive effect of GSCM and external pressures on operational performance have been plotted in Figure 2.



GSCM= Green Supply Chain Management, EP= External Pressure, OP= Operational Performance

Fig. 2. Interactive Effect of GSCM and External Pressures on Operational Performance

DISCUSSIONS AND CONCLUSION

Numerous studies have been conducted on green supply chain management and its implications on organizational performance in different countries [e.g. see, Wong et al., 2015]. Still, there remains a deficiency of clear knowledge and evidence of how green/environmentally friendly supply chain impacts financial performance directly and indirectly [Golicic, Smith, 2013].

This study examined the mediating role of operational performance on relationships of (i) GSCM and financial performance and (ii) GSCM and environmental performance. This study also examined the moderating role of external pressures (regulatory pressure and customer pressure) on the association of GSCM and operational performance to test whether the association between them is stronger or weaker due to such pressures. Overall results of the study support the formulated hypothesis.

First hypothesis of the study was that GSCM is positively related with financial performance of the organization. The results support this hypothesis. As stated previously, GSCM contribute to cost reductions for the consumption of energy, waste management and disposal of waste, material procurement which enhances revenue/sales growth. Our results are in line with Jawaad and Zafar [2019] who also reported positive effects of GSCM on the financial performance of the Pakistani companies. Numerous preceding studies also reported an optimistic association between green practices/activities and firm performance in terms of profitability [Rao, Holt, 2005; Zhu et al., 2013].

Second hypothesis of the study was that GSCM is positively related with environmental performance. The results of the study support hypothesis 2. There is also substantial evidence in the literature that green supply chain management (GSCM) enhance environmental performance positively [Kumar et al., 2019]. Green supply chain management enhances supply chain efficiency and collaboration between business partners which leads to improved environmental outcomes, reduces pollution and

saves costs [Rao and Holt, 2005]. Thus, GSCM leads to better environmental performance in our study too.

Hypothesis H3 and H4 were related to the mediation of operational performance between the relationship of GSCM-financial performance and GSCM-environmental performance respectively. The results confirm partial mediation for both relationships. These results indicate that GSCM puts emphasis on the creation of resource as well as operational efficiency which GSCM activities are not intended to gain profit and shares in new markets but adopted to achieve the objectives of cost reduction and resource efficiency though minimizing damage to the environment. It is the improved operational performance which creates new sales, productivity and reduction of costs.

GSCM involves product design for reuse, product recycling and reduced energy usage, which improves the use of material and minimizes waste in production of goods, thereby enhancing environment performance.

Lastly, hypothesis-5 was related to the moderation of external pressures on GSCM-operational performance relationship. The results suggest that the external pressures moderate the association of green supply chain management and operational performance in a manner that the association will be strong when external pressures are high.

Customer pressure and regulatory pressure from government are strongly linked to the execution of GSCM practices. The results suggests that enterprises adopt green supply chain management practices because they face pressure from regulatory authorities, customers and environmental regulations formed by central and regional governments and client countries. Organizations that are environmentally responsible make themselves most desirable to shareholders/investors and customers.

Our results must be interpreted with caution as they are related specifically to Pakistan and might differ for other countries/ contexts. Overall, these results of the study show that

implementing and adopting green practices such as green supply chain management (GSCM) practices in Pakistan is crucial for various industries in response of external pressures from different stakeholders. Higher external pressures from various stakeholders and the organization's internal mandatory green practices drive companies to effectively implement GSCM practices that ultimately lead to enhanced environmental and financial performance.

In Pakistan, protection of the environment has become a progressively important issue. Government officials/policymakers could do more to educate manufacturers about the implementation of green supply chain management practices. Policymakers should be proactive in the development of environmental regulations in order to encourage the development of green supply chains by manufacturing companies as a systematic and integral approach so that Pakistani companies are able to incorporate green supply chain management (GSCM) practices successfully with appropriate guidance and regulations. Implementation of GSCM practices can lead towards eco-friendly environment and can be an important indicator for country's seriousness towards achievement of UN SDGs regarding environment.

Like any other study, our study has some limitations. First, we considered GSCM as a uni-dimensional construct in line to the recommendation of several researchers. GSCM has also been conceptualized as multi-dimensional construct with internal and external practices. It can be an interesting investigation to see that how these practices are related to environmental and financial performance separately. We propose that future researchers might do so. Secondly, we treated customer and regulatory pressures combined as external pressures. They could have been treated separately and independently. Third, our data collection design is cross-sectional. Although, the primary reason for collecting data at one time and not using time lags was that our study involved data collection from executives who are not readily available and data collection from executives thus becomes a challenge.

Lastly, the data collected for the study is only for Pakistani companies. The study may be replicated in other countries/ contexts. We propose that future researchers might explore some other mediating and moderating mechanisms.

ACKNOWLEDGMENTS AND FUNDING SOURCE DECLARATION

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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