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Research Article

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Corporate Social Responsibility and Green Supply Chain Management: The Moderating Role of Environmental Turbulence

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Abstract

Being environmentally friendly has become a need in today's society. Environmental principles have been integrated into the management of the supplier for designing a multi-stage, complex, GSCM. The purpose of this investigation is to demonstrate CSR affects a company's ability to manage its green supply chain. This research also confirms that environmental turbulence moderates the impact of CSR on GSCM. The current study's hypothesis was developed using stakeholder theory and resource-based view theory. Hattar Industrial estate's manufacturing companies provided the information used in this study. Empirical evidence supports the positive impact of CSR on the GSCM. Furthermore, the findings show that environmental instability greatly reduces CSR's impact on GSCM. This study has some valuable implications for manufacturing companies as; to enhance more in GSCM are need to focus more on CSR activities both external and internal CSR activities.

Key Words

Corporate Social Responsibility, Environmental Turbulence, Green Supply Chain Management, Resource-based View, Stakeholder Theory

Introduction

The increasing level of attention towards global climate change and its impact on the environment has helped many manufacturing firms to enforce green efforts in their supply chain. Through an expanded understanding of the availability chain's sustainability practices, companies can make better decisions and convey innovation to their procedures (Silvestre and Tîrca, 2019; Jadhav et al., 2019; Taghikhah et al., 2019). Due to the increasing awareness about the environment, many companies are now adopting more eco-friendly policies. This is often also evidenced by the growing popular opinion in favour of green products and therefore the media's coverage of such issues (Chien and Shih, 2007; Mathiyazhagan et al., 2015).

An important approach to helping companies balance their economic, social, and environmental obligations while also improving their long-term competitiveness is environmentally friendly supply chain management (ESCM). It's now widely accepted that supply chain management (SCM) is a perfect way for companies to increase commercial profits while also better understanding supply chain management (Zaid, Jaaron, & Bon, 2018). GSCM could be

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a method of thinking for companies looking to increase profits while also acknowledging the importance of supply chain management (Zaid, Jaaron, & Bon, 2018).

Making the supply chain more environmentally friendly may be a well-kept secret. According to this theory, buyers will use their purchasing power to pressure suppliers in the supply chain to improve their environmental performance. This suggests that buyers (which are typically large corporations) can play a facilitator role in helping suppliers (which are typically small and medium-sized businesses) make the switch to a more environmentally friendly organization.

Furthermore, customer density inspires businesses to incorporate green performance into their operations and to reward them with improved performance in kind (Kagan et al. 2003). In order to meet the growing demand for green products, companies have long been under customer pressure to supply them (Kassinis and Vafea 2006). It increases economic output and gives a company a competitive advantage to invest in more environmentally-friendly technologies (Rao and Holt 2005). Procter & Gamble, Unilever, and Engro Company are just a few of the companies making investments in green initiatives. General Motors recently invested $2.5 billion in the acceptance of green business performance in its actions (Gleim 2013).

For individuals, GSCM can lead to competitive advantages like lower prices, greener products, and better supplier integration; while at the national level, it can create markets for green products and raise acceptance of suppliers with environmental issues. Creating a green supply chain can help a company become more competitive by cutting costs. Supply chain costs can improve the market status of industrial companies in their private sector with lower profit margins. Additionally, it has the potential to open up new markets for businesses (Shahriarpour et al., 2017).

GSCM can be studied from a number of theoretical perspectives, according to the researchers. For instance, Tian, Govindan, and Zhu (2014) used the evolutionary theory of games to examine Relationships between stakeholders and the GSCM diffusion method. Zaid et al. (2018) and Foo et al. (2018) looked at the influence of GSCM on ecological acts using resource-based perspectives. These readings recognize the reputation of stakeholders in GSCM, however, they only deal with obedient responses to stakeholder pressure (Adebanjo, Teh, & Ahmed, 2016; Foo et al., 2018; Wolf, 2014).

The stakeholder concept states that companies have a win-win association with their stakeholders and acquire better overall performance consequences by actively and efficiently dealing with their relationships (Bosse, Phillips, & Harrison, 2009; Hasan, Kobeissi, Liu, & Wang, 2018). Stakeholder theory offers a low-cost theoretical viewpoint on shareholder dealings, which has emerged as the central pattern in the literature on CSR (Hasan et al., 2018). Questions like how GSCM occurs and what its results are in Pakistani contexts as of the attitude of stakeholder theory (for example, Corporate Social Responsibility) are important because we will be unable to gain a comprehensive understanding of Green Supply Chain Management if these problems remain unknown. Research into GSCM experiences and outcomes from the viewpoint of corporate social responsibility can help firms adopt and implement GSCM successfully and improve firm performance by incorporating CSR as a driving force by providing valuable insights.

When it comes to marketing a company's sustainable development, CSR can be an important business strategy. This includes both internal CSR (activities that specialize in management practices toward inside stakeholders) and outside CSR (actions that specialize in management practices toward outside stakeholders) (Darnall, Henriques, & Sadorsky, 2010). Companies that implement Stakeholders within and outside of CSR organizations are reporting less pressure on CSR strategies, and this could lead to GSCM. GSCM companies must accurately predict and meet their own needs because of CSR activities, which encourage multiple stakeholders will be involved in the implementation of GSCM by businesses. GSCM can also help companies grow their market share and make a profit by using this strategy (Luthra et al., 2016). It is beneficial to complete the GSCM strategy to reduce the cost of material purchases and reducing the company's use of energy can boost its act (Nejati, Rabiei, & Jabbour, 2017; Zaid et al., 2018).

Furthermore, empirical evidence that explains the way in which CSR leads to GSCM has yet to be fully explored. In addition, Wang et al. (2020) stated that more research into potential mediators and moderators is necessary. As a result, the moderating effect of environmental turbulence along the CSR-GSCM connection will be examined in this research. Despite the importance of ET in designing supply chain strategies, there is only a small amount of empirical research on ET in this field. By looking into how Environment Turbulence plays a role in the connection between CSR and GSCM, this study aims to close this knowledge gap. To put it another way, ET measures how quickly an environment changes during a particular event (Wong, 2014).

Keeping sustainable supply chain practices can be difficult in a turbulent environment. Because environmental turbulence raises the uncertainty level even further, GSCM can be hampered. As a result, understanding how environmental turbulence influences the CSR-GSCM is critical. Environmental turbulence was defined by Calantone et al. (2003) and Kuivalainen et al. (2004) as an enterprise's technological, competitive, regulatory, and customer altitudes change and influence corporate management judgments. Market and technological turbulence are major components of ET (Kohli & Jaworski, 1990). For markets, instability and heterogeneity in customer preferences are of concern, while for technology; change is of concern (Jaworski & Kohli, 1993).

Turbulent environments have high levels of the inter-length alternate that creates uncertainty and unpredictability, heterogeneity (i.e. a diverse range of market segments), enthusiasm (i.e. the speed and expectedness of change), and hostility (Glazer and Weiss 1993; Calantone, Rosanna, and Cornelia 2003; Kuivalainen et al. 2004). In response to the increasing environmental turbulence, Christopher and Holweg (2011) argue that companies must constantly adapt their operating environments to keep up, and the effectiveness of traditional supply chain management models is thus called into question. As a result, environmental turbulence or environmental uncertainty may be a factor to be taken into account when coordinating supply chains.

Problem Statement

As global temperatures rise and biodiversity changes, companies are under increased pressure to improve their environmental performance. Furthermore, stakeholders' environmental consciousness has grown, motivating businesses to reduce their operations' negative environmental impact. The availability chain network of the companies is responsible for a significant amount of environmental degradation. In their supply chains, companies are increasingly addressing environmental issues. Their supply chain operations have been redesigned to incorporate environmental concerns with the goal of minimizing the negative effects on the surroundings. Green supply chain management states the practice of incorporating environmental concerns considerations across the entire supply chain (Sarkis, 2012). Prior research explored a connection that is made between the supply chain and environmental concerns. For example, Hill (1997) discussed how companies can face environmental pressure by integrating environmental issues into a supply chain network. Then, a number of investigations probe that hypothesis as a GSCM. As a result, the current research aims to discover how green supply chain practices address environmental concerns while also examining the role of corporate social responsibility in environmentally friendly supply chain management. Due to the growing number of environmental issues, supply chain operators must consider the impact of uncertainty or ET in their supply chains. Corporate social responsibility has grown in recognition over the past numerous long time in importance due to an increased focus on environmental issues. As a result, the goal of this research is to determine how environmental turbulence affects the profitability of GSCM.

Research Questions

The present study intends to find answers to these questions:

Question 1: How does Corporate Social Responsibility influence firm Green Supply Chain Management?

Question 2: How does Environmental Turbulence moderate the link between Corporate Social Responsibility and Green Supply Chain Management?

Literature Review

Hypotheses Development

Corporate Social Responsibility and Green Supply Chain Management

CSR is defined as the moves taken via companies to market or consent to certain social interests beyond their direct interests, shareholders' pursuits and legal necessities (El Akremi et al., 2018; Turker, 2009). In terms of corporate social responsibility, both inside and outside CSR is considered (Farooq et al., 2017; Werther Jr & Chandler, 2010). Companies can benefit from CSR both internal and external by focusing more on addressing social issues, such as environmental stewardship and welfare reform, which may influence business management practices (Chernev & Blair, 2015). As a result, companies that practice corporate social responsibility (CSR) can adapt their business models and supply chain management to go green (Babiak & Trendafilova, 2011; Meixell & Luoma, 2015).

Green supply chain management provides a fee to its stakeholders (Badi & Murtagh, 2019) and bids valuable results for enterprise operations (Chin, Tat, & Sulaiman, 2015), which can also include instrumental worth for improving firm performance (Hasan et al., 2018). Therefore, there should be more focus on the connection between CSR, global supply chain management, and firm performance. GSCM can assist companies in reducing resource waste and improving ecological efficiency throughout the supply chain by integrating green initiatives (Foo et al., 2018; Zaid et al., 2018).

Kuei et al. (2015) organizations' acceptance of green practices has been linked to government regulations, customer demands, and uncertainty about the environment, according research. In latest years, it has been discovered that mainstream businesses (Thiel, 2016) implement CSR initiatives for corporate sustainability, including sports (Trendafifilova et al., 2013) and water management (Lambooy, 2011). According to Gordon et al. (2012), CSR-related advantages concerning society have contributed to inclusive radiation reductions as people have become more environmentally conscious.

CSR has recently come under scrutiny from researchers, primarily as a result of customer demand for environmentally friendly products and services. The term "Eco-entrepreneur" refers to someone who focuses on protecting the environment, stopping environmental problems in various industries, and introducing environmentally friendly products and procedures into the marketplace (Melay and Kraus, 2012). Numerous businesses have been compelled to exclaim social and ecological issues by stakeholders, such as competitors, customers, employees, and the government (Pekovic and Vogt, 2020). Hens et al., (2018) have shown how the need for cleaner construction and a greener environment has evolved over time, emphasizing the status of corporate social responsibility in attaining the aforementioned. Bohas and Poussing (2016) looked at by what method green information technology approaches are impacted by CSR strategies.

H1: CSR is Positively and Significantly Associated with GSCM

Moderating Role of Environmental Turbulence

As stated by Jawordki and Kohli (1993), the speed of change in consumer composition and preference is an example of an external environmental factor that encourages companies to work with one another (Alexiev et al., 2016). Customers' tastes and preferences change slowly in a low-turbulence market, but Small and medium-sized enterprises operating in volatile markets need constantly progress their products and services to keep up with shifting customer preferences

(Jaworski & Kohli, 1993). Multiple shifts in the market's requirements, as well as competitor behavior, necessitate fast responses in turbulent environments in order to respond to plug opportunities. Aware managers can devise solutions to plug demands, such as collaborating with external parties to establish and maintain relationships between firms (Alexiev et al., 2016). As a result, rapid transformation and uncertainty brought on by turbulence make it more difficult to implement tactical orientation and CSR activities. Because environmental contingency theory claims that complexity, speed of variation and ambiguity has an impact on firms' abilities and behaviors (Hatch & Cuncliffe, 2006; Pennings, 1975).

The logic of institutional difference suggests (Julian & Ofori-Dankwa, 2013) that both participants in the market i.e. customers, suppliers, distributors, and competitors as well as non-market players i.e. policymakers and the general public in less developed countries priorities CSR and environmental sustainability issues (Dobers & Halme, 2009). CSR activities that benefit society as a whole shed light on the comprehensive concept of sustainability (Homburg et al., 2013). Environment protection, long-term economic growth, and service to society are all major concerns (Turker, 2009). Furthermore, the efficacy of any strategic orientation is dependent on market dynamics (Jaworski & Kohli, 1993; Zhou & Li, 2010). In this regard, the effectiveness of CSR towards various stakeholders is also influenced by the market environment. One of the most important aspects of a market environment is the level of competition and market turbulence (Zhou & Li, 2010). A competitive environment also enhances the progressive impression of corporate social responsibility on marketing competence. When a market is highly competitive customer choices are numerous and perceived quality is similar across brands (Jaworski & Kohli, 1993).

Corporate social responsibility (CSR) helps companies construct progressive brand alertness by creating a positive and distinguishing brand image (Hoeffler & Keller, 2002; Keller, 1993). Companies can effectively distinguish their brand from competitors by including socially responsible attributes in their corporate brand (Lai et al., 2011). As a result, CSR strengthens a company's ability to provide added value to customers by helping customers identify their relationship with the company (Du, Bhattacharya, & Sen, 2007). When confronted with competing brands in a competitive market, customers who identify with the company are more likely to make brand-specific purchasing decisions. A company's marketing skills are improved in a highly competitive environment by engaging in CSR toward society.

Market turbulence is a term used to describe how dynamic, complex, and rapidly changing the industry environment is (Jaworski & Kohli, 1993). Participants in stable markets can study industry reports to understand and anticipate customer needs (Fang, Palmatier, & Steenkamp, 2008). However, in a highly uncertain market, it’s difficult for a company to perfectly antedate customer demand or forecast response to marketing strategies (Klein, Frazier, & Roth, 1990). Customer service and market responsiveness produced by CSR are likely to be more significant in markets with high levels of uncertainty (Jaworski & Kohli, 1993).

The turbulence in the market also intensifications the reputation of customer trust produced by CSR towards customers in building marketing competency. There is a great deal more trust between customers in uncertain markets, which means their product choices are heavily influenced by whether or not they believe in the focal firm (Fang et al., 2008). As a result, in uncertain markets, customer trust in the central firm generated by corporate social responsibility toward customers is more critical than in stable markets. As a result of these previous studies, it's clear that in extremely volatile markets, customer response to a company's CSR toward society and employees is difficult to predict because these two activities do not provide direct value to customers. Customers' demands change frequently, so it's possible they won't respond to a company's societal or employee welfare efforts in a turbulent environment. In highly turbulent markets, while corporate social responsibility (CSR) helps firm differentiate their brand and motivate employees, it does not helps firm predict customers' current and future demands.

Additionally, Green management encourages companies to pay close consideration to environmental apprehensions and, as a result, the demand of several stakeholders, which enhances information, flows and broadens research and development (R&D) in order to promote

innovation. The effectiveness of strategic managerial innovation and green management is dependent on the turbulence within the environments in which a company operates (Danneels & Sethi, 2011; Li & Atuahene-Gima, 2001). Theoretically, better management of environmental risks will result from GSCM, which, in turn, will allow organizations to continuously improve their environmental performance (Alvarez, Jimenez, & Lorente, 2001). In today's fiercely competitive market, green-centred organizations are continually escalating their level of physical activity to look and learn more and gain a better understanding of the circumstances they are in (Reyes-Santiago et al., 2019).

According to the resource dependence theory (RDT), environmentally conscious firms are more energetic in fascinating outside possessions to ensure a steady supply of resources in the face of rapid technological change (Zhao, Feng, & Shi, 2018). GSCM is frequently referred to as the external absorption strategy because it allows companies to participate in supply chain partner capitals to reduce potential uncertainties and risks. When technology is undergoing turbulence, environmentally conscious firms are more likely to integrate their supply chains with environmental practices to gain relevant knowledge and resources. Furthermore, Green innovation necessitates more technical assistance from both internal and external stakeholders, and it is more vulnerable to the effects of the technological environment (Chan, Yee, Dai, & Lim, 2016; Chen, 2019). A number of revisions have pointed to technological upheaval as a critical environmental factor that affects supply chain members' ability to share knowledge and transfer technology (Autry, Grawe, Daugherty, & Richey, 2010; Wang, Dou, Zhu, & Zhou, 2015).

Environmentally friendly technology is unpredictable and uncertain, with innovation cycles short and competitive pressures on businesses to remain abreast of technological change within manufacturing (Atuahene-Gima, Li, & De Luca, 2006; Wang et al., 2015). There are numerous opportunities for green innovation in today's turbulent technological environment (Sheng, Zhou, & Li, 2011). Firms that need to develop green products and processes by gaining knowledge from their supply chain's suppliers may face challenges in the speedily changing green technology environment (Wu, 2013). Firms may specialize in keeping up with and meeting external technological demands while also analyzing and excluding the latest technology's complications to green innovation in a highly turbulent environment (Song et al., 2005). In this situation, it is critical for businesses to develop dynamic capabilities to meet challenges head-on and then take advantage of opportunities that arise.

Moreover, during times of high market turbulence, the changing competitive landscape can be guided by customer requirements and preferences (Narver & Slater, 1990), and thus Companies stand to gain more if they take advantage of consumer preferences and maintain their eco-friendly requirements in the context of GSCM. Increased market uncertainty, on the other hand, would reduce the impact of CSR on GSM.

H2: Environmental Turbulence Significantly Moderates the Relationship of CSR on GSCM

Research Design and Methodology

Research design

The design of the research describes the investigation and management of the research process. This is an exploratory study that empirically examines the impact of CSR on GSCM while keeping environmental disruption to a minimum. Data was collected through the use of a survey technique in this study. We used a standardized questionnaire culled from a number of previous studies that had been empirically tested. Ten questions were adapted from the study of corporate social responsibility to create questionnaires for this variable (Duygu Turker, 2009). A green supply chain management questionnaire with ten questions was developed based on the findings of (Zhu, Q., Sarkis, J., & Lai, K. H. 2008). To do this, the questionnaire for the variable of Environmental turbulence was adapted from a study that included six items related to the market and five items related to technology (Jaworski, B. J., & Kohli, A. K. 1993). Hattar Industrial Estate Haripur Hazara region KPK employees were given a questionnaire to complete as part of the

survey process. The study was analyzed using a cross-sectional and non-experimental research design.

Population and Sampling Technique

Unit of Analysis

The subjects of the study were the workers at Hattar Industrial Estate in the KPK province of Haripur Hazara. Employees in the process of acquiring and supplying goods of the manufacturing sector located in Hattar Industrial Estate Haripur Hazara region of KPK are polled for quantitative results. Managers and HR departments, as well as other managers who are directly involved in procurement and supply chain processes, provided and gathered data for empirical observations.

Population

For the purposes of research, a population refers to a group of people. People are a population according to Schindlerb and Coop (2008) who want to make a conclusion about them. To select a sample from the population, researchers used a random sampling method. The current sample includes workers at Hattar Industrial Estates Haripur in KPK. Data was collected from supervisors, managers at the middle level of the organization and indirectly involved in supply chain and industrial processes, as well as top-level managers for green supply chain management located in the Hattar Industrial Zone. We conducted a survey. Manufacturing is a specific class of industry. Construction materials manufacturing, cement manufacturing, detergent manufacturing, steel manufacturing, plastics manufacturing, and pharmaceutical companies all fall under this category. Our choice of these firms for the empirical study is based on the fact that growth and development patterns in this domain are expanding.

Sampling Technique

Through the use of a random sampling technique, quantitative information was gleaned from various types of respondents. Many academics use this strategy when everyone has an equal chance of selection. Random sampling is based on the premise that each and every person in the inhabitants has the same chance of being selected. The most significant advantages of this approach are that it's low-cost, easy to use, and fast when processing large amounts of data.

Sample Size

Quantitative data was gleaned from a wide range of respondents using a random sampling technique. When everyone has an equal chance of being selected, this is a common strategy among academics. Random sampling is based on the idea that everyone has an equal chance of being chosen. This approach has the advantage of being low-cost, simple to use, and fast when dealing with large amounts of data.

Table 1

Instrument Values and Statistics

Description	Numbers	Percentages
Total floated	400	100
Returned back	218	54.5
Rejected	43	10.75
Valid	175	43.75

Data Collection Method

Closed-ended questionnaires were used to collect quantifiable data. The questionnaire was adapted from numerous studies to represent systematic literature that had been supported by prior research. The Likert scale was used to grade all of the survey questions. In addition, we chose the series of the scale from strongly disagree (1) to strongly agree (5) as shown in Annex. Hard copies and emails were used to distribute survey questions to the company's employees.

Instrumentation

Our study utilized a Likert scale with a range of 1 to 5 points as the validation scale. Gender, age groups, number of employees, experience level, and educational and management level were all included in the demographics section of the survey. CSR was incorporated into the scale developed by Duygu Turker in 2009. "Our Company has the necessary equipment to reduce its negative environmental impact," is an example of a CSR sample item. A scale developed by Zhu, Sarkis, and Lai, H. was used to assess green supply chain management (2008). The GSCM sample item contains the following: i.e. "Cooperation with customers for cleaner production". Moreover, the scale developed by Jaworski and Kohli (1993) was used to measure environmental turbulence. Due to the fact that ET includes both market turbulence and technological turbulence, the scale developed by Jaworski and Kohli (1993) was used to calculate ET. The sample item of market turbulence is, "In our kind of business, customers' product preferences shift dramatically over time". The following is an example of technological turbulence; i.e. "The technology in our industry is changing rapidly".

Results and Analysis

Demographics

The demographic properties such as gender, education, managerial level, no of employees, and experience are given in the subsequent table.

Table 1

Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	6	3.4	3.4	3.4
	Male	169	96.6	96.6	100.0
	Total	175	100.0	100.0	

169/175 respondents are men, making up 96.6 percent of the total; only 6/175 respondents are female, making up 3.4% of the total. The fact that men make up the vast majority of survey participants is undeniable.

Table 3

Education of Respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Graduate	131	74.9	74.9	74.9
	Masters,M.B.A/B.B.A(H)	27	15.4	15.4	90.3
	M.A.M.Sc/M.Phil/M.S	5	2.9	2.9	93.1
	Others	12	6.9	6.9	100.0
	Total	175	100.0	100.0	

74.9 percent of those who answered the survey have a bachelor's or higher degree, as evidenced by the graph. The remaining master's degree holders make up 15.4% of the sample. M.Phil/MS degree holders make up 5% of respondents, with others (6.9%) making up the remainder.

Table 4

Management Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Upper	9	5.1	5.1	5.1
	Middle	164	93.7	93.7	98.9
	Lower	2	1.1	1.1	100.0
	Total	175	100.0	100.0	

When asked about their job title and level of responsibility, 5.1% of respondents said they held an upper-level management position. A total of 93.7 percent of those polled work in middle management, while a mere 1.1 percent work at the lowest level of management.

Table 5

No. of Employees in Firm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to 50	14	8.0	8.0	8.0
	51 to 100	12	6.9	6.9	14.9
	101 to 150	105	60.0	60.0	74.9
	151 to 200	18	10.3	10.3	85.1
	More than 200	26	14.9	14.9	100.0
	Total	175	100.0	100.0	

Above table illustrated that there are 8.0% of firms with 1 to 50 employees, 6.9% with 51 to 100 employees, 60% with 101 to 150 employees, 10.3% with 151 to 200 employees, and 14.9% with over 200 people working there, in response to the number of firms with employees.

Table 6

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 to 5	84	48.0	48.0	48.0
	6 to 10	43	24.6	24.6	72.6
	11 to 15	26	14.9	14.9	87.4
	16 to 20	6	3.4	3.4	90.9
	21 to 25	14	8.0	8.0	98.9
	26 to 30	2	1.1	1.1	100.0
	Total	175	100.0	100.0	

According to the following results, 48.0% of respondents reported having work experience between 0 and 5, while 24.6% of respondents reported having 6 to 10 years of work experience. In addition, 14.9% of those polled said they had 11 to 15 years of work experience, 3.4% said they had 16 to 20 years of work experience, 8.0% said they had 21 to 25 years of work experience, and only 2% said they had more than 26 to 30 years of work experience.

Descriptive Statistics

Descriptive statistics is a method for extracting useful information from large sets of data. It serves as a visual cue to emphasize the most important aspects of the data being displayed.

Table 7

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
IVMean	174	3.2764	.68076	.441	.184	-.779	.366
ModVMean	175	3.2206	.63575	.620	.184	-.279	.365
DVMean	175	3.3531	.86932	.579	.184	-.852	.365
Valid N(listwise)	174						

This table shows that the Skewness and Kurtosis values for all variables are in the range of Skewness -1 to +1 and Kurtosis -3 to +3, so all of the variables in the data set are within the expected range. However, the mean values of all variables are greater than 3 and also higher than average. But when the standard deviation is less than 1, it indicates that the data series has low dispersion, indicating a positive response to the statements posed.

Using 10 questions and 175 responses, Cronbach's Alpha for corporate social responsibility (an independent variable) comes out to.851 (in the table above). Cronbach's Alpha is greater than 0.70, which indicates that the data is trustworthy and reliable.

Cronbach's Alpha for ET (moderator) is.860 above the table, based on the results of ten different tests and 175 responses. Cronbach's Alpha is greater than 0.70, which indicates that the facts are trustworthy and dependable.

Cronbach's Alpha for Green Supply Chain Management (independent variable) is.770 in the preceding table based on 10 questions and 175 responses. Cronbach's Alpha is greater than 0.70, which indicates that the figures are trustworthy and consistent.

Pearson Correlation Analysis

Pearson's Correlation Coefficient was used to find out how well the variables are related and the general direction of the relationship. It looks at how variables are calculated as well as their factual and statistically significant relationships with one another.

Table 8

Correlation

		DVMean	ModVMean	IVMean
DVMean	Pearson Correlation	1	.323**	.578**
	Sig. (2-tailed)		.000	.000
	N	175	175	174
ModVMean	Pearson Correlation	.323**	1	.379**
	Sig. (2-tailed)	.000		.000
	N	175	175	174
IVMean	Pearson Correlation	.578**	.379**	1
	Sig. (2-tailed)	.000	.000	
	N	174	174	174

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

ET has a positive correlation with GSCM, as shown in the table above. At a level of confidence of 99 percent, the correlation coefficient is significant at p 0.001.

In addition, there is a link between CSR and GSCM that is positive. At a level of confidence of 99 percent, the correlation coefficient is significant at p 0.001.

Regression Analysis

It demonstrates a connection between the two variables. The data were analyzed with SPSS.

Table 9

Model Summary

Model		R	R Square	F	Sig
1		.627[a]	.393	36.72	<0.001

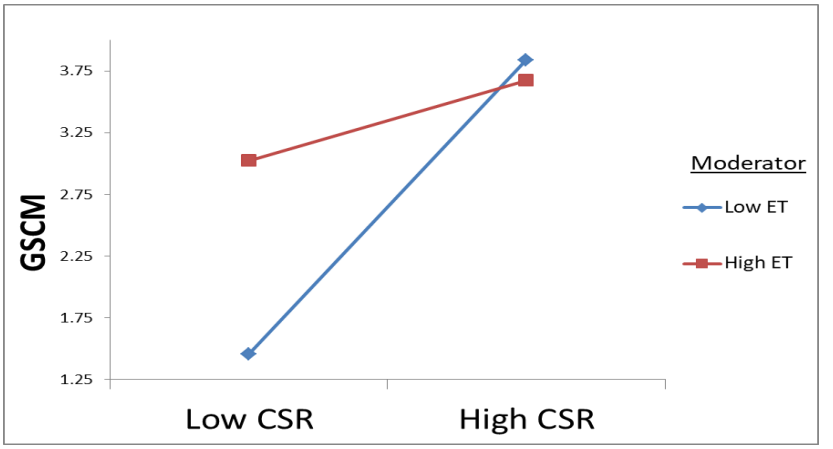
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.554	1.409		3.942	.000
	IVMean	0.759	.407	-.593	-1.864	.064
	ModVMean	0.351	.428	-.987	-3.153	.002
	IVxMV	-0.433	.120	1.867	3.615	.000

a. Predictors: (Constant), IVxMV, ModVMean,

The second hypothesis was formulated as (H2 $_{(a)}$ ET (Market Turbulence) significantly moderates the link between corporate social responsibility and green supply chain management, thus dampening the impact of CSR on GSCM.

Technical turbulence (ET) moderates the connection between corporate social responsibility and global supply chain management negatively. After doing regression analysis on empirical data, it's clear that ET has a negative impact on the CSR-GSCM relationship. Because of this, the relationship between CSR and GSCM is weakened by ET. It lends credence to what we already knew.

Graph



As visible in the graph, when Environmental Turbulence the uncertainty of the environment is low the CSR impact on GSCM is greater but with the moderating impact of Environmental Turbulence increasing it reduces the impact of CSR on GSCM. So, the graph clearly demonstrated that with low ET the impact of CSR on GSCM is positive, it is increasing. However, the greater uncertainty of the environment negatively affects the relationship between CSR and GSCM.

Conclusion and Discussion

The goal of this research was to look at the factors that predict GSCM in the Hattar Industrial State KPK, Pakistan manufacturing industry. According to stakeholder theory, CSR was viewed as a major factor in the success of the GSCM. This research also looked at the underlying mechanism of Environmental Turbulence. A sample of 175 manager-level employees from industries in Haripur's Hattar industrial states provided the data needed for this study. GSCM benefits significantly from CSR, according to new research. Furthermore, the results show that ET reduces the negative effects of CSR on GSCM.

The study's first hypothesis was to look at how CSR relates to GSCM in general. Empirical evidence shows the importance of corporate social responsibility and its positive impact on GSCM. Companies that practice corporate social responsibility (CSR) add value in terms of the environment and the community as a whole (Boulouta & Pitelis, 2014; Muller & Kolk, 2009) and can take environmental and societal concerns into consideration when it comes to making long-term plans. Green supply chain management is a company strategy for reducing negative environmental impacts (Hervani, Helms, & Sarkis, 2005). As a result, CSR contributes to the success of GSCM (Govindarajan, Kopalle &Danneels, 2011). Using stakeholder theory and previous research, this hypothesis's conclusion (Wang, Zhang, & Zhang, 2020).

The corporate social responsibility influence on green supply chain management performance is moderated by environmental turbulence was the second hypothesis of the thesis. According to empirical findings, ET has a negative influence on the relationship between corporate social responsibility and global supply chain management. To put it another way, researchers discovered that in a more turbulent environment, CSR had a smaller impact on GSCM. ET reduces the benefits of CSR to GSCM. Companies with limited resources in a highly uncertain environment will undoubtedly find it difficult to maintain their GSCM. This study's findings are in line with previous findings (Jaworski & Kohli, 1993; Autry, Grawe, Daugherty, & Richey, 2010; Wang, Dou, Zhu, & Zhou, 2015). According to Inman & Green, (2021), environmental uncertainty has a positive effect on supply chain efficiency, but this study shows the opposite.

Theoretical Contributions

The research presented here adds something to the body of knowledge, both theoretically and empirically. To begin, this research has looked at factors that may indicate GSCM risks, such as CSR and ET. In this study, CSR and ET are included in the equation, which adds to the body of GSCM literature. When it comes to sustainability, there has been some research in relation to the connection between CSR and SCM. As an added bonus, this research takes environmental volatility into account when examining the link between corporate social responsibility and green supply chain management. While ET found a positive and significant effect of an uncertain environment on supply chain practices (Inman & Green, 2021), the findings of (Lin & Ho, 2010) suggests that it has a negative impact on GSCM. Since the present study's empirical data also confirm that ET has a negative moderating impact on the effect of CSR and GSCM, it provides support to the previous findings and adds literature to the negative impact of ET on supply chain practice. In addition, the moderating role of ET has rarely been examined previously, therefore this study adds to the literature on ET as a moderator.

Practical Implications

Besides, the theoretical contribution of this study also provides some practical insights into the organizations. For instance, this study empirically confirms that CSR has a constructive role in GSCM. Organizations in order to enhance more in GSCM need to focus more on CSR activities both external and internal CSR activities. In order to promote environmental efficiency, businesses should understand a number of practical implications, according to this research discussion. As a result of this research, the firm now recognizes the importance of GSCM and the

urgency of implementing it in the current environment. A targeted education programme can help business strategists become more environmentally sensitive. Whether it's financial or environmental performance, top management is always held accountable for the organization's results. This research also confirmed that environmental turbulence has a major barrier to greening supply chain practices due to its moderating role.

Green supply chain practices have been shown to improve a company's environmental performance. As a result, managers must learn how to green supply chain networks within their capacity, for example, taking environmental factors into account when selecting suppliers, using raw materials that produce less toxics and CO2 during production, and utilizing environmentally friendly energy sources and modes of transportation. According to a recent study, companies that are committed to improving their supply chain sustainability are less likely to harm the environment. As a result, the government and legislators must pass laws that make this possible. Organizations that are sustainable in terms of tax relief or any other resource, energy relief should be encouraged and motivated to implement green supply chain management.

Limitations and Recommendations

It will be a significant contribution to the existing body of knowledge if our empirical study is accepted. Furthermore, this research is a pioneering attempt to investigate the complex interrelationship between study variables, including the impact of corporate social responsibility on green supply chain management in the face of environmental turmoil. In addition, environmental turbulence is moderating the relationship between CSR and GSCM in this research study. As ET rises, the effect of CSR on green supply chain management is lessened. Likewise, as environmental turbulence is low CSR's impression on GSCM is growing in importance.

There are some limitations to what we know right now. First of all, due to the limited funding, the study could only include small sample size, so data were gathered from a single region of Pakistan, more specifically from a single industrial estate in KPK, which raises the question of generalizability. In the future, data collection could include other manufacturing industries in Peshawar, Faisalabad, and Mardan, such as Gadoon Textile Mills Limited, Faisalabad textile mills, and so on. As a result, by increasing the sample size, more complex responses could be collected, raising the issue of generalizability and also. Future researchers, on the other hand, it's possible to do research in a different field than that to determine whether or not this model has an effect on the performance of the organization.

Thirdly, the study collected its data just from manufacturing firms, so we cannot generalize it to other industries. So, regarding this, in future it is recommended that data could be collected from other industries like; health care institutes or hospitals, hospitality and also educational institutes. Despite this, finally, we have taken environmental turbulence as a moderator while in future studies may employ other variables as moderators like institutional support, competitive intensity, and cooperation with customers. Moreover, future research may include mediating variables like green environmental strategy, firm's performance and green transportation incorporated into the model to examine how it interacts with supply chain management for environmental sustainability.

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