Sustainable Supply Chain Governance Mechanisms: Strategic Approaches to Corporate Sustainability

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Abstract- Organizations are very concerned about their reputation in the current business era. Due to high sustainability snags, the organizational image can be damaged. There is need for additional social and environmental strategies and standards to portray organizational concern towards the environment and society. Therefore, investigating the direct relationship between supply chain management, sustainable supply chain governance and corporate sustainability. The study is interested in analyzing the direct relationship between supply chain management, and corporate sustainability and between sustainable supply chain and corporate sustainability. In addition to that the current study is also interested in examining the moderating role of sustainable supply chain governance in the relationship between supply chain management and corporate sustainability. The difficulty of issues under investigation has been investigated by the use of three theoretical frameworks, which allow its understanding and facilitate the construct of clear idea about the practical perspective. In the next section, Sustainable Supply Chain Management has been defined and literature has been sourced on its different approaches along with the theoretical frameworks and mechanism of governance. The SEM-PLS is used to investigate the hypothesis relationship. Overall the findings of the study have provided support to the proposed results.

Keywords: Sustainability, Supply Chain, Governance

1.0. Introduction

Most of the social and environmental issues these days are because of the unsustainable industrial and economic development patterns. With the objective of achieving competitive advantage regulated by the market forces, companies are innovative new ways of business and implementing sustainable approaches in product development. Corporate sustainability is a key approach implemented by companies [1]. [2], defined sustainability with particular reference to TBL (Triple-bottom-line). This was proposed by [3], taking into consideration the social, economic and environmental dimensions of a business. There is need for re-considering the way in which businesses are established and run at every level i.e. from company level to supply chain management. Sustainable Supply Chain Management has been considered an important aspect in this dynamic business environment.

Organizations have incorporated sustainability in their business operations from different perspectives [4]. According to [1], companies approach triple bottom line in a different manner and develop initiatives considering short and long term [5]. Moreover, performance measurement is done in the form of reports as well [6]. Governance mechanisms are being established by companies to enhance the sustainability performance by implementing related initiatives and strategies. To maintain effective relationships with supply chain partners, companies work on sustainable actions [7,47-50]. The role of Sustainable Supply Chain Governance has been started investigating through researches because of its relevance in the current business environment [8]. The role of collaborative techniques has been demonstrated and evaluated in the previously published works on SSCG [9], along with the formalization of different levels of governance mechanisms [10]. Several dimensions of Sustainable Supply Chain Governance are not clear. According to [11], there is need to examine the social and environmental responsibility far above the corporate limitations by emphasizing on the implementation requirement of upstream and downstream understanding. A clear understanding of the impact of sustainability strategies on the structure of supply chain governance has been depicted by [12], with focus on contracting issues, which is greatly needed. Several frameworks have been provided by researches [13], for analyzing the link between governance mechanism and the way
in which business strategies and model are practically implicated as well as aligned.

In order to narrow the research gap, the research aims at offering empirical evidence and formulates theory with the use of contingency theory and case studies. The perspective of strategic alignment of organizations and resource-based view has been taken into consideration as well [14,47-51]. The contribution of the study is in the form of three profiles of sustainability needed as traditionalists, sustainability practitioners and sustainability leaders. The study classifies the mechanism of governance based on the level of development and collaboration along with the identification of elements, which support the mechanism of governance.

The difficulty of issues under investigation has been investigated by the use of three theoretical frameworks, which allow its understanding and facilitate the construct of clear idea about the practical perspective. In the next section, Sustainable Supply Chain Management has been defined and literature has been sourced on its different approaches along with the theoretical frameworks and mechanism of governance [15]. In the third part, research methodology has been done. In fourth section, cases have been described. The section five reflects the study findings along with the segmentation of three sustainability profiles, which are traditionalists, sustainability practitioners and sustainability leaders. The division of the governance mechanism has been based on the level of formalization and collaboration. Factors that govern the mechanism of governance are identified in this section as well. The research is concluded in the sixth section along with its limitation, practical implications and need for future research.

2.0. Literature Review

2.1. Strategic Approaches to Corporate Sustainability

Organizations have different considerations related to sustainability. The potential sustainability of a company is identified through the band-aid method of keeping the policy undisturbed [16], for instance, the prevention of waste material, recycling and initiatives to decrease the waste. A method of lifecycle development has been implemented by several corporations for establishing sustainable policies through investments. Deep-change strategies are also implemented by companies through reconsiderations of prototypes of business operations, which are driven through sustainability. [17], differentiated among the traditionalists, environmentalists and leaders of sustainability in their recent research, which are different methods of corporate sustainability. The classification is based on the issues of ecology and has limited link with the social factors. Therefore, it does not resolve the implications of supply chain. Moreover, the strategic problems have emerged in most of the studies on sustainable supply chain management. According to [18], the methods of sustainable supply chain management have been linked with ecology and the pressure of market, information and resources of an organization.

Two complementary and distinct strategies form sustainable supply chain management [19]. These two are supply chain management for sustainable products and supplier management for performance and risk. Organizations are very concerned about their reputation in the current business era. Due to high sustainability snags, the organizational image can be damaged. There is need for additional social and environmental strategies and standards to portray organizational concern towards the environment and society. The criterion of life cycle determines the second strategy at the level of supply chain for product performance related to society and ecology. The economic capital need to be reconsidered by the management of companies in SSCM through organization of resources, which are tangible such as expansion of extension of supply chain mechanism through investments and culture of organization for sustainability [20]. There are extensive and complicated issues in corporate sustainability. According to [21], a suitable structure for academic research has been portrayed by identifying the difficulty of different approaches of corporate sustainability. The researchers highlighted the crucial role of organizational focus and its scope particularly different levels of organizational interaction with actors of supply chain on the way towards sustainability. There is need for practical research for the development of theory during the initial level of literature by the practitioners [22].

2.2. Mechanisms of Sustainable Supply Chain Governance

Supply chain management (SCM) has recently become popular among practitioners and academicians [11]. Business competition was strengthened in the 1990s and 2000s in global markets and supply chain management practices have been chartered to deliver the right products, to
the right place, at the right time, in the right quantity, quality and condition to the growers at the lowest possible cost[3], [10],[11],[12] It has been suggested by. [13] that the recent business environment has been driven by constant changes, market unpredictability, as from banking sector to production sector the business environment is constantly changing [14],[13],[17], rapid technology changes and shorter product life cycle [15]. This has resulted in a range of products and inconsistent global demand [16]. According to [3] successful organizations remain competitive through various supply chain channel collaborations while adapting to changing market place conditions [18] [19].

The focus in SCM is on the efficient, effective, and timely delivery of goods from raw materials and supplies through manufacturing to the ultimate customer or user. It is required the flow of information in both forward and rearward directions in the supply chain. Without effective information flow, the goals of supply chains cannot be achieved. In addition, the successful implementation of an effective SCM and effective inter-organizational system requires the cooperation of a large number of external partners [33]. In short, relational capability can be defined as the property of two or more data files that can be shared or exchange for view, edit, or transform to become useful information within or between two or more supply chain members. This implies that the SCM is engaged in the management of the movement of products, information and finance up and down the supply chain. Over time, businesses having highly developed SCM capabilities will benefit the most from radical improvements in grower responsiveness, advanced grower services and satisfaction, better adaptability to changes in market conditions, enhanced retention of growers and more effective marketing [20]. For [20], SCM is an idea, “whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers”. The common objective of almost every function in the chain is “Supply” and it is especially important strategically because of its impact on costs, profits and market share on the whole. A different perspective of the SCM is needed when it comes to the usage of inventories as a final, not first, option as a balancing mechanism. In this case, a more advanced approach is necessary, one that calls for integration instead of interfacing inventory management within a supply chain. This concept was then extended to cover the whole supply chain [15].

According to [23], governance is the structure through which long-term sustainable goals are developed for an organization. Further, [24], confirms that there is less literature available on the level of commitment with the supply chain actors and structures of governance to be implemented in an organization. There is an opportunity for the researchers to conduct research studies to highlight the link between supply networks, governance instruments and outcomes[25]. It is critical to analyze information and literature on governance mechanism from the perspective of supply chain while considering the sustainability issue. In the field of SSCG and SSCM, new research thoughts have arisen supporting the business organizations with the active role of corporate supply chain. Organizations can formulate new strategies across the supply chain by communication the improved impacts of society an environment [26]. By incorporating new ways of sustainable approaches towards society and environment, organizations can build strong repute.

[28], defined SSCM to be processes and practices adopted by companies for maintaining relationship within and outside the organizational. Internal relations are related to departments and external are linked with supply chain actors and different stakeholders. The objective of the organizations in ensuring SSCM is to implicate the approach of corporate sustainability and establish a strong repute among the customers. The research directs towards internal and external mechanism of governance for differentiating among different actions related to supply chain. Formalization and collaboration are two distinct factors that define the mechanism of governance, as highlighted in literature. With reference to the factor of collaboration, sustainability strategies can be implemented by organizations by implicating market force in a collaborative style of governance or non-collaborative way [28]. The focal firm is dependent on the contractual power while working in a non-collaborative setting. Decisions and parameters of governance are imposed to the counterparts of supply chain. In supply chain management, this practice is common [29]. A powerful tool is represented by shared and collaborative approaches of governance with reference to SSCM, which support the initiatives of sustainability [30], [27]. There is need to create a balance in the new collaborative methods for governance implementation and traditional approach based on power. The role of socialization is clarified by [31], among the mechanism of collaboration, which construct linkages supporting the flow of information and establishment of a culture based on mutual commitment.
Formalization is the second factor, which has been suggested by literature in the characterization of Sustainable Supply Chain Governance Mechanisms. Formalization has been defined as the process of decision making embed by different procedures and rules; [32]. The formal and informal coordination mechanisms are differentiated through a common typology of mechanism of governance. Organizations structure their association through reporting and control systems in the formal mechanisms explicitly. Incentive systems, dispute resolution processes, structure of command and standard procedures of operations can be adopted by organizations. In the unstable and changing scenarios, formal mechanisms are implemented. On the other side, further mechanism of coordination defined by the relationship is included in the informational social systems rather than bureaucratic structures. This is adopted when there exists a relation among the actors before.

2.3. Theoretical Research Framing

A number of theoretical lenses have been used in this research for analyzing the research gap, which has been identified. These theoretical approaches have been previously adopted by several researchers who worked on sustainable supply chain management. Systematic approaches are required for exploring the complexity and understanding of issues related to sustainability [33]. In the similar way, it has been argued by [34], that there is need for using different theories for establishing or developing sustainability theory for a business. [35], have suggested the adoption of different theories in research on corporate sustainability to facilitate the analysis in-depth. The issue of corporate sustainability has emerged to be crucial and it is clear that the use of different approaches and theories is required to understand its complexities. Moreover, the relation between the dimensions needs to be explored. A macro-theory has been developed by [36], on corporate sustainability, which is formed on the complicated framework based on nine theories. Every single theory has its own limitations in resolving the dimensions of corporate sustainability. The combination of resource based view, contingency theory and the perspective of strategic alignment gathers the complexity of relation between Sustainable Supply Chain Governance Mechanisms and CSAs. For this reason, these are selected collectively. In the theoretical framework (Fig 1), the individual contributions of these theories are highlighted.

The approach of Contingency theory (CT) focuses on the structure and nature of an organization, which can take different forms with reference to different contingencies. In order to maintain the position in changing contexts, structures are adopted by the organizations for ensuring high performance in the market competition [37], Four broader aspects of contingency factors including size of firm, context variables of an organization, culture and national context along with strategic context have been studied by [38].

The contingency theory has been used in this research for understanding the relation among the mechanism of governance, contingency factors and particular CSAs development (Fig 1). Different studies analyzing sustainable supply chain management have adopted CT. Based on the internal and external barriers and supporting factors, a typology of SSCM approaches have been constructed by [39].

In Supply Chain Management, the strategic alignment perspective (SAP) has been extended for linking practical implications with the strategies of a corporation [40]. The need for a relation between operational capability of supply chain and competitive capability of a corporation has been highlighted by [41], in order to establish integrated and coherent strategies. An interactive association among these elements is required within the context of SSCM along with a better understanding. In order to explore the linkage between the functional level of supply chain mechanism of governance and mechanism at corporate level, SAP has been used in this research work. For analyzing the issues of SCM, several recent studies have used SAP [42], formalized a theory, which is Resource Based View. The theory has practical implications in the management field, and it has been found that implementation of tangible and intangible resources at the disposal of a firm lead to the achievement of competitive advantage. The competency of different firms for achieving sustainable competitive advantage has been analyzed by [43]. The trusts of client and relationship and capabilities such as knowledge and skills, which are the key resources, have been regarded as intangible [44]. In sustainability research, RBV has been used positively [45], for defining the strategies of corporate sustainability, sustainable supply chain management and sustainable competitive advantage [46]. Resource-based view has been used as a framework in this research for analyzing the tangible and intangible...
capabilities and assets of companies using their capacity in the development of governance mechanism and CSAs

**H1: SCM has significant impact on the CS**

**H2: Sustainable supply Chain Governance (SSCG) has significant impact on the supply CS.**

**H3: SSCG moderates the relationship between SCM and CS.**

The theoretical framework of the current study is shown in the figure 1. The coordination theory along with the resource-based view are used as underpinning theories of the current study. These theories have been widely used to explain the factors and phenomena in explaining the issues related to supply chain management.

![Conceptual framework](image)

**Figure 1: Conceptual framework**

### 3.0. Methodology

The current study is carried out to explore the nexus among SCM, SSCG, and CS. The current study has employed the quantitative approach. The qualitative approach used the surveys-based methodology the reason why the quantitative research design has been frame for this study, is that it helps a researchers in thoroughly examining the large sample of respondents and then generalizing their responses. Meanwhile it also helps a researcher in obtaining the summarized behavior of respondents participating in the study. This study which has employee the quantitative method has adapted a questionnaire to quantify the responses and opinion regarding issues raised in this study. The use of questionnaire also helps a researcher in understanding the relationship between set of dependent, independent and intervening variables. The questionnaire was designed according to the objectives, problem and hypotheses of the study to determine the relative importance of factors that may control the employees’ performance in the manufacturing organizations of Indonesia. The data collected through the surveys were loaded into the Microsoft Excel, the IBM SPSS, and Smart-PLS. The five-point Likert scale is used to operationalize the variables and their sub constructs. The questioner is adapted from the previous studies.

### 4.0. Research Analysis and Discussion

To achieve the objective of the current study we have employed the PLS-SEM. The PLS-SEM, according to [47], the PLS-SEM is second generation is structural equation modelling, which not only new but also a robust as it integrates all the model into a structure of the equation and produces results with a simultaneous operation by producing a relationship with all direct and intervening phenomena. The SEM-PLS, which in modern times is one of the robust techniques to analyse the data on social issues is used as the statistical tool in currents stud. Recently many researchers such Hair et al. [46] and Hameed et [47] has employed and argued that whenever we are dealing with some novelty in conceptual models or need an advance assessment of any existing phenomena, we prefer SEM-PLS over other technique such as multiple regression analysis. The, we are dealing with The Hair et al. [46] argued that the PLS-SEM is a two-step equation, which is an advance form of multiple regression and accounts for two assessment namely the inner model assessment and the outer model assessment. The first step is estimation of the reliability and validity of the model. In Smart-PLS, after obtaining the results of reliability and validity for each construct, examining the structural model results is necessary in order to test the hypothesis. There are five steps of procedures in examining the structural model results; (1) examine the structural model for collinearity issues; (2) the significance of path coefficients; (3) followed by examining the level of R2 values; (4) assessment of f2 effect size; and last but not least, (5) examining the predictive relevance (Q2 and the q2 effect size). The reason why the SEM-PLS is preferred our the multiple regression is that the earlier handles the multiple equations simultaneously and can produces results with a simultaneous operation by producing a relationship with all direct and intervening phenomena.

Validity and reliability of data were inspected in the initial step of analysis of data. Measures of composite reliability and Cronbach’s alpha were
examined. The value of 0.70 is considered as an acceptable value for the measure of Cronbach alpha. Furthermore, threshold level of 0.70 as mentioned by [46], for composite reliability was also observed. Moreover, average variance extracted, and factor loadings were analyzed for observing convergent validity and internal consistency. According to [46], factor loadings and AVE must be above 0.5. In the present study, the values of AVE and factor loadings are above 0.5. In addition, external consistency was also examined using discriminant validity.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Loadings</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCM</td>
<td>SCM1</td>
<td>.722</td>
<td>0.915</td>
</tr>
<tr>
<td></td>
<td>SCM2</td>
<td>.955</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SCM3</td>
<td>.990</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SCM5</td>
<td>.825</td>
<td></td>
</tr>
<tr>
<td>SSCG</td>
<td>SSCG1</td>
<td>.843</td>
<td>0.895</td>
</tr>
<tr>
<td></td>
<td>SSCG2</td>
<td>.855</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSCG4</td>
<td>.802</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSCG5</td>
<td>.925</td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>CS1</td>
<td>.884</td>
<td>0.932</td>
</tr>
<tr>
<td></td>
<td>CS3</td>
<td>.955</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS4</td>
<td>.903</td>
<td></td>
</tr>
</tbody>
</table>

The discriminate validity is one of the measures to examine the interrelationship of the reflective variables with their own indicators. Basically, it shows or measure that the measurement or operationalization of the variables which genuinely are not linked are linked in the case of study. Fornell-Larcker has introduced one of the robust and widely used measure of discriminate validity therefore the current study is using this value as a base to evaluate the discriminate validity. According to [47] index of the reliability of a variable must be greater than 0.70. However, the values in cross loadings were same with outer loadings value, the difference is in cross loadings it compares with correlation among constructs. Concisely, the result of evaluating the discriminate validity of this study thru Fornell-Larcker Criterion and Cross Loadings is shown in the table 2.

Table 2. Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>SCM</td>
<td>.948</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSCG</td>
<td>.731</td>
<td>.798</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>.518</td>
<td>.550</td>
<td>.801</td>
<td></td>
</tr>
</tbody>
</table>

In the next step of data analysis, in order to test the proposed hypotheses that were developed on the literature a PLS bootstrapping was employed. A threshold level of 1.96 t-value was set for the rejection or acceptance of hypotheses. Firstly, all the observed relationships have exhibited t-value of more than 1.96, thus showing acceptance of all the set of direct hypotheses including H1, and H2.

Table 3. Direct Effect

<table>
<thead>
<tr>
<th></th>
<th>(β)</th>
<th>SD</th>
<th>T-value</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.111</td>
<td>0.035</td>
<td>3.161</td>
<td>0.002</td>
</tr>
<tr>
<td>H2</td>
<td>0.207</td>
<td>0.043</td>
<td>4.810</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Moreover, Table 4 highlights the Moderating effect of SSCG in the relationship between the SCM and CS. These results of moderation show that for both moderation hypothesis, the t-value is above 1.96 and p-value is below 0.05 which accept H3.

Table 4. In-Direct Effect through Mediation

<table>
<thead>
<tr>
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<th>(β)</th>
<th>SD</th>
<th>T-value</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>0.109</td>
<td>0.018</td>
<td>4.319</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Predictive power of the structural model can be assessed by the R2 value of the endogenous construct (Hair et al. 2012). Thus, R-squared simply defined as the “percent of variance explained” by the model. In this study the R2 value is 0.441, which suggesting that 54.1 % of the variance of CS can be explained by SSCG, and SCM.
Table 5. Expected Variance

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
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<tbody>
<tr>
<td>CS</td>
<td>54.1%</td>
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</table>

The results of the current study have shown a great deal of agreement with the hypothesized results.

5.0. Conclusion

The objective of the organizations in ensuring SSCM is to implicate the approach of corporate sustainability and establish a strong repute among the customers. The research directs towards internal and external mechanism of governance for differentiating among different actions related to supply chain. Formalization and collaboration are two distinct factors that define the mechanism of governance, as highlighted in literature [52-54]. With reference to the factor of collaboration, sustainability strategies can be implemented by organizations by implicating market force in a collaborative style of governance or non-collaborative way. The focal firm is dependent on the contractual power while working in a non-collaborative setting. Decisions and parameters of governance are imposed to the counterparts of supply chain. In supply chain management, this practice is common. Organizations are very concerned about their reputation in the current business era. Due to high sustainability snags, the organizational image can be damaged. There is need for additional social and environmental strategies and standards to portray organizational concern towards the environment and society. Therefore, considering the investigate the nexus between supply chain management, sustainable supply chain governance and corporate sustainability. The study is interested in analyzing the direct relationship between supply chain management, and corporate sustainability and between sustainable supply chain and corporate sustainability. In addition to that the current study is also interested in examining the moderating role of sustainable supply chain governance in the relationship between supply chain management and corporate sustainability. The difficulty of issues under investigation has been investigated by the use of three theoretical frameworks, which allow its understanding and facilitate the construct of clear idea about the practical perspective. In the next section, Sustainable Supply Chain Management has been defined and literature has been sourced on its different approaches along with the theoretical frameworks and mechanism of governance. The SEM-PLS is used to investigate the hypothesis relationship. Overall the findings of the study have provided support to the proposed results.

References


