Supply Chain Governance, Corporate Governance and Firm Supply Performance: A Paradox of Prediction

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***Abstract*— The supply chain management has emerged as a key competitive tool, however, little or no attention has been given to explore the link between supply chain governance, external corporate governance mechanism such as board characteristics and supply chain performance. Therefore, the current study is being carried out explore the relationship among three interlinked phenomena such as external corporate governance, supply chain governance and firm supply performance. It is argued in this study that the supply chain governance mediates the relationship between corporate governance firm supply performance. The SMART-PLS is used to achieve the objective of the current stud. The data is collected from the operation managers, production managers and finance managers of manufacturing firms listed in Indonesian Stock Exchange. The results of the study have shown a great deal of agreement with our proposed hypothesis. Meanwhile the findings have provided support to the predictions of agency theory and resource based theory. The study which is among pioneering studies on the issue will be helpful for policy makers and managers in understanding the role of agency theory in supply chain management.**

Keywords: *Agency Theory, Supply chain management, Indonesia*

1.0 Introduction

In the recent years, due to rapidly increasing competition, companies are induced to improve organizational efficiency of their firms. The area of supply management is the one which is highly influenced by this increased competition. The supply management accounts for the large share of the corporate assets having a potential to assert negative impact on customer service. Besides, corporate governance is another important area for organizational efficiency, which is considered to be a determining factor to achieve administrative success. Successful governance of the supply chain ensures the availability of all the necessary resources, readiness of individuals as well as teams to work under agreed terms, proceed for agreed time, and bringing the required and desirable benefits for the firm. In addition, it ensures well communication and reporting of the supply chain governance program and its progress across the organization. Allen [1], Basheer [2], and Basheer [3] explained that it is evident to the world, from the recent insignificant crisis that transparency is one of the crucial elements for the smooth functioning of the capital markets in corporate management. Corporate governance consists of two sub categories of governance mechanism, namely internal and external control mechanism. The internal mechanism of control involves functions like risk market committee, internal audit, and committee of HR. Whereas, the external control mechanism possesses external control which is offered to board of the directors on the firm. It is however a matter of thought that is corporate governance only required to solve financial and economic problem or it can go beyond this scope, which was explained by Allen (2017) that as a deliberate structure, organization comprises of several departments and each of them highly contributes to the development and performance of each other. In the meantime, the interests of the stakeholders may vary from one department to the other and capturing share of owners' wealth also varies from department to department. Consequently, following the corporate governance theory of stakeholder, the present study has attempted to emphasize the effective role of corporate governance over firms' supply performance and supplier diversification.

The managers of supply chain have captured increased interest by the researchers and academicians, during the recent few decades [4]. Whereas the supply chain is a structure similar to a chain which links the suppliers of the first-tier [5]. The management of SC is a broader area which envelopes everything i.e. from product delivery to value adding of the product at every step. The successful management of the supply chain guarantees optimum output with the minimum utilization of its resources [6]. System perspective is followed by the SCM, by taking into account the systematic pattern of the organizational operations.

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Furthermore, structural arrangement of the supply chain includes outsourcing, inventory of the vendors, and positioning of factories according to need of the hour [7].

Stevens & Johnson [4] suggested that strategic choices by the executives play a huge role in the organizational performance. The agency theory suggests that the choices made by executives are shaped largely by check and control mechanism used by the directors [8]. This theory considers the manager to act as agent to help maximize the wealth of owner or the shareholders. However, a cost is also involved which is named as agency cost, that arises as a result of the conflict of interest among the managers and owners', thus significantly affecting performance of the firm. This theory postulates that the management or the segment of risk taking depends largely on self-interest and potential to expropriate the wealth and benefits from the owners or the risk bearing segment. This view takes into account the following elements:

1. Aligned interests of the owner and management,
2. Technical competencies of management and directors,
3. Successful supplier management, and
4. Effective mechanism of internal corporate governance

The similarities among the corporate governance and SC governance even exists based on this research. However, limited studies are available in this area. An issue regarding supply chain governance, is the absence of generally accepted theory. the limitations for this field include the shortage of data on the collaboration of supply chains and limited practices of supply chain governance. It is evident that the models of governance emphasize to create a balance among the goals of organizations and individuals, while the models of SC need to improve relations among several companies that are involved in creating supply for customers. Limited number of studies on inter-organizational governance is available since either scholar are more interested in organizational studies or this area of multiorganization is time consuming and costly [6]. Majority of the available studies belong to the fields of economics, finance and accounting. Although, little evidence is there that explains the impact of corporate governance in these areas. Therefore, following the agency and stakeholder theory, present study is employed to fill the existing gap in the literature, by identifying relationship among the supplier diversification, corporate governance, and supply performance of manufacturing firms in Indonesia.

2.0. Literature Review

2.1 Supply chain performance

The term supply chain refers to the efficient, strategic, and systematic coordination of the traditional business processes involving processes and actions that transform inputs into the final goods across and within the organization (Bharati & Chaudhury, 2006; Christopher, 2011). With reference to this research, four elements namely supply chain responsiveness, SC reliability, SC costs and SC agility are combined in order to measure the operational performance of the supply chain. Throughout the study, this will help to completely measure the performance of organization. The term of asset management is not included in the list of measuring the variable of SC operational performance, as the operational performance of organization does not take into account its financial performance but asset management in the model of SCOR emphasizes on the gains from investment [12]. This study defines supply chain reliability as the quality of maintaining and performing perfect fulfillment of order in the supply chain, that convey needs according to the requirements stated. In addition, the responsiveness of the SC refers to the speed by which supply chain deliver products, information or services to its members within the supply chain.

Moreover, the term SC agility refers to the ability of the supply chain to instantly adjust the operations and tactics of the SC as a result of the change in responses due to market changes. Furthermore, the costs integrated with the supply chain operations is named as supply chain costs. Besides, inventory holding period, a major part of working capital, is defined as the stock holding period, or a period of inventory turnover or a period of inventory conversion [7]. Per annum inventory turnover as the total days on average which a business requires in order to turn stock or inventories into debtors or cash in a year. Inventory management aims to retain a level of optimum inventory at a minimum possible cost, to ensure uninterrupted or continuous business operations [12].

2.2. Supply Chain Governance

It is a common debate, whether term governance can be used as a synonym to management. Several definitions are suggested by the scholars for governance. Ruuska et al., [9] defined governance as a set of processes or mechanism that influence how recurrent or single transactions is systematically organized before an event and accomplished out post among multiple actors, among single or multiple organizations.

This paper defines governance as the structures, institutes and the rules which control, regulate and guide social life characteristics that emerges from power. Though, governance is not merely management or decision making rather a framework in which decisions are made for a system. Various keywords within the literature have used for governance in groups of organizations, like inter-organizational governance [10] network governance , trans-organization [11], and governance along the inter-firms . Supply chain is a term that is considered by the group of organizations, and is imposed for the multiple firms to create supply for their customers at international level. The present study considers new areas of discussion namely supply chain governance and impact of this governance on the performance of supply chain. In the last decade, governance was considered as a contemporary scientific field that was controlled and influenced by the corporate governance. Thomson and Argyris [13] defined it as organizations comprising of single entities having a basic element of relationship between managers and shareholders, while named it as perspective of shareholder or principal-agent problem [9].

Ruuska et al., [9] put forward another advanced view regarding corporate governance, as the relation among stakeholders and organizations, with the name of stakeholders' perspective. Within the study, we consider a hypothesis that in case of single entities even the recent view is thought to be useful. It provides a framework for enterprises having its manufacturing capabilities and headquarters in one country. As the recent era is governed by the globalized companies, having multiple supply chain partners from around the world, this framework is somehow outdated as compared to the real world. Nowadays, economic organizations function as inter-organizational bodies. While a chain of companies which combine in an attempt to supply services to the customers according to desirable demand, makes a supply chain.

Supply chains both perform as a stable or un-stable structure. Five different types of value chain governance have been identified as captive, hierarchy, market, modular and relational which ranges from the highest levels of power symmetry to its lowest level [14], [15]. A hierarchical relation is found among the companies, having a total control over each other, while an opposite situation prevails in the market relation. Both market and hierarchical relations can be raised among the two partners. Gerefii's [15] view for supply chain can be extended if its is observed as a multiple bilateral set of relations. According to this view, an asymmetric SC usually refers as an extended relationship, involving the producer, coordinator and buyer who is responsible for running a hierarchical system. The term hierarchical SC governance seems to be best suited. A long-term structure of corporate governance can be implemented by the coordinator without considering the interests of the partners. According to classification done by Gerefii's [15], this type of governance is suitable for captive and hierarchical governance. However, captive governance is the situation when smaller suppliers possess only one customer.

Governance is defined as a relationship between the stakeholders, which helps to control and determine the performance and strategic direction of organizations. Serving the interest of the multiple groups of stakeholders is important [2],[3],[7]. Companies are required to exhibit governance to establish appropriate structure for the supply chain operations. Governance comprises of approaches and structures required for initiating a project, or a major strategy that is needed to implement efficiently and effectively. Lack of good governance can result in unaccomplished organizational goals and benefits or complete project failure [5]. Therefore, a right structure is essential for the proper functioning of the organization and require careful consideration including the evaluation of its needs, company structure, size of operation, and markets where business will be operationalized [12].

The need for the services of supply chain organization comes from the fact that, it generates scale and leverage, delivers profitability at the bottom line, manages and adjusts risk, and follows the environment friendly and regulatory agenda, which is a major challenge for centralization [16]. A method to assist Supply Chain governance is to introduce Chief Supply Chain officer (CSCO) in acceptance of the considerable role which it plays in enhancing business performance around the globe [17]. In recent years, significance of the role of CSCO have been increased in corporations and became more strategic with time [18]. Due to companywide leverage and standardization, compliance pressures, globalization and factors of risk have stimulated a trend of centralization for supply chain operations.

The control of all functions of supply chain by the department of headquarters is common for companies [17]. The movement towards the professional supervision of SC strategy and its implementation can accelerate the CSCO's level of control over management. As a result, two larger benefits would emerge. Firstly, concentrated functions better contribute to transparency within the company, thus helps in avoiding the problems, for instance a third-party provider for logistics that may be blacklisted from one country but being a

strategic partner in some other country [16]. Secondly, it allows effective implementation of SC strategy. Generally, functions of supply chain that is led by CSCO position, may help drive these initiatives better than how it performs in a multinational supply chain.

As a tool of management, the Supply chain governance is increasingly gaining importance to not solely act as a corporate responsibility and sustainability measure but also actively achieve opportunities for cost savings and avoidance breaking all the norms [18]. Furthermore, it helps to withdraw centralized implementation while centrally maintaining control in organization. Resultantly, the structure of SC governance exhibits oversight and manages logistical operation capabilities by explaining roles, responsibilities, and accountability

2.3. Corporate Governance of Supply Chain Performance

According to Basheer [2], the corporate governance, as a powerful code is a prior condition for increasing investment by the investors from the institutions, in the emerging economies. The quality of governance is depicted by the firms' level of compliance it shows towards the code of corporate governance. [3]. A separation exists between risk-taking and risk-bearing functions and because of which a clash of interest occurs among owners and the managers [2],[3],[8]. However, this kind of conflict is referred as agency conflict [2], [3],[8].

The disseminated ownership provides more incentives to managers by capturing wealth of minority shareholders, thus overpowering the management by making it more powerful and autonomous. The literature on corporate governance has somehow provided a solution for installing a mechanism of external control as a board of directors. Basheer [2], have discussed the determinants of agency conflict in cash holdings decisions namely independence of board of directors, their competencies and its size. Apparently, literature exhibits the presence of conflict of interests among managers and owners, while an effective mechanism of control is offered by the board of directors to adjust this gap.

Jensen [19] suggested that keeping aside the agency theory, a stakeholder theory exists that takes into account an interconnected system within an organization, is known to be the stakeholders. This theory postulates that each of the stakeholder is accredited to the performance of organization. Apart from just the agency theory of principal-agent relationship, it also assesses organization as an arrangement of multiple set of relations [20]. The stakeholders of an organization include buyers, government, suppliers, employees, and the creditors (Muller, 2017). The theory suggests that participation of all these contributory stakeholders are essential for the success or its failure, also it does not merely depend on the owners and managers as in case of agency theory [20]. A two-tier system of board prevailing in Japan and Germany requires the composition of board based on theory of stakeholder. In corporate governance, stakeholders' view was introduced by Senbet in 1998, who claimed that alone the owners do not enjoy profit or bear cost rather it is the stakeholder who is associated either with the product or company both emotionally or financially, besides they influence and are being influenced by the decision taken by the management.

Besides clearing the board's role of monitoring by the agency theory, it fails to make up the roles regarding resource provision and advisory of the board, as well as in explaining boards' ability to do sound monitoring. Therefore, Zona et al. [21] explained that integration of the theory of resource dependence and agency theory together improves the effectiveness of the functioning of board. In a study by Mudambi, and Tallman [22]they examined complementary capacity of both these theories and suggested them as important pillars with which the role of decision making by managers in MNCs can be considered. In their role of resource dependency, the board of directors serve to link the firm with factors external to the organization that generate external dependencies and uncertainty [23]. The ability in satisfying the dual roles of the board entirely depends on diversity which is based on the theory of resource dependency [24]. However, board is considered to be a cohesive agent that assures the executive management about the interests of both the stakeholders and shareholders. They are described as boundary-spanners, that are responsible for conveying required information to the executives at an appropriate time, while Hillman et al., [23] further described it as a link among the firm and its external environment, allowing company to minimize uncertainty from its external environment.

Hillman et al. [23] argued that since directors outside to the organizations are varied, while boards' role of advisory and monitoring are the roles of capital such as reputation, network ties, experience and expertise. Following the integration suggested by Hillman et al. [23] varying effects of outside and inside directors was further examined by Dalziel et al., [25], taking a sample of 221 organizations from the US as human capital of R&D. The study concluded that independence of directors affects the directors' extent to which it uses the human capital in order to influence spending in the R&D. Directors are required to

possess certain required qualification so that they could add value to its company and become part of it. Value adding services of the directors include building linkages, attracting and generating resources from outside the firm using network connections, introducing new suppliers and customers, and provision of advisory services using their experience of knowledge and wealth to the firms' executives in order to improve the value of firm [14],[22],[24],[25], [37-43].

There exists a steering group, which is responsible for the effective governance of supply chain, generally it is a team of seniors that are assigned with the task to ensure the success of ongoing project and implementation of strategic objectives [26]. The role of this group is to make decisions regarding Supply chain portfolio of Lines of Business, geographic regions and strategic business units in order to deliver desirable results, also it does not include the logistic functions of the company including warehousing, inventory control, distribution, and outbound freight. A weak governing and regulatory environment in an organization, results in poor transparency, inefficient corporate governance, and incompetent rule of law for the foundation of the supply chain. An important role of governance is to ensure that the desirable capabilities are available for the right resources, when needed. In this regard, right training and education can be identified and conveyed by the companies in an attempt to uplift the capability of supply chain governance [27].

In this similar context, the term supply chain means:

- Collectively establishing, communicating and planning guidelines for the global policy, assessing risk and plan for mitigation, minimum expectation of the performance, and the compliance measurement.
- Corporate visibility of expenditures of actual SC by the categorical arrangements of logistical operations and compliance pattern of the contract.
- Planning and implementing principal initiatives and integrating the factors of supply chain governance.
- Tracking and publishing about the position and performance of measures and initiatives taken by the SC governance to the external vendors, internal departments, carriers, suppliers, providers, major stakeholders and the intermediaries.

Developing a process of continuous improvement, based on monitoring of closed-loop and managing compliance and spending patterns.

H1: Corporate governance has significant impact on firm supply performance

H2: Corporate governance has significant impact on supply chain governance

H3: supply chain governance has significant impact on firm supply performance

H4: Corporate governance affect the firm supply performance thorough supply chain governance

Figure 1 depicts the theoretical framework of this study. The resource-based theory and agency theory are used to conceptualize the framework shown in figure 1.

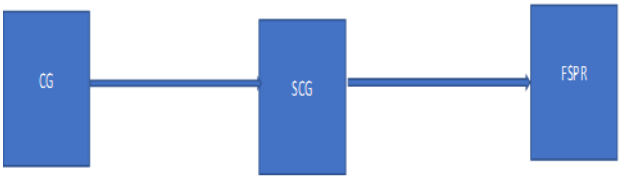

Figure 1: Conceptual framework

3.0. Methodology

A quantitative method was proposed by Creswell [28] for testing objectives of the theories i.e. constructing theoretical framework for the study, after assessing relationship between the variables. The purpose of the present study is to explore the relationship of variables i.e. External governance such as board size, board competency, supply chain governance and supply chain performance . A quantitative research design was employed, and the instrument used for research was questionnaire. The data collected from the survey is also named as numbered data, which was gathered from the Indonesian apparel and textile companies for testing theoretical framework using statistical techniques. In this kind of survey certain assumptions regarding deductive testing theories, developing protection for the bias, handling of alternative statements, and becoming able to accept and reproduce findings from the data. Total number of 550 questions were being sent and 335 were received by the respondents. The rate of response is 67 percent. According to Teller [29], quantitative survey is one of the common methods used for the empirical research in social sciences, especially in areas of SCM and logistics. Present study employed the survey method, as it encompasses large sample size or broader population for the study . Historically, self-administered mail or

postal questionnaires were being used that were less costy and provide results much easily from the large sample size.
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4.0. Research Analysis and Discussion

The present study employed a PLS-SEM approach, which is a two-step approach [30]. Estimation of the measurement or the outer model is done before designing the structural or inner model. Each constructs of the model are individually tested initially while estimation of the outer model, in order to ensure its unidimensionality and validity Same is the case for handling domain of the higher order construct). Indicators that are unrelated to the construct must go through the process of modification in order to adjust to the construct or theory of the study. All these steps are part of accepted procedure, following the principle component analysis (PCA). suggested that technique of PLS-SEM has the required capability in describing complex model with no constraints of sample size and it always coincide. Besides, it does not have a requirement of normal distribution, and it focuses on predictor specification or nonparametric technique. Moreover, Anderson and Gerbing [31] suggested that, it has a capability to cope with the formative and reflective measures. Many researchers have employed this technique in their recent studies in order to examine the factors of technology adoption in supply chain and its impact on the performance of supply chain.

The term loading refers to the relationship that the manifested variables or the indicants exhibit about the construct. According to Hair et al [30] , 0.50 or above of the loadings are considered to be appropriate, while the square of it equals the variance that is shared or contributed by the construct and variable. This explains 50% of construct with the variance, thus having a measurement variance error of 50%. Hair et al. [30] suggested that 0.70 of the loadings and above is said to be applicable. For the first studies, value between 0.50 and 0.60 loadings are somehow appropriate. Consequently, initial value of 0.50 or above was employed for this study.

A statistic for internal consistency is appropriate only for reflective kind of constructs. The model of internal consistency is measured through Cronbach's alpha (Chin, 1998). According to Nunnally [32] the initial value of Cronbach alpha of 0.7 or above is observed as reliable. However, more credence is required to the estimate of composite reliability, in case of a present research [33, 34]. Hair et al. [30]suggested that higher reliability explains lower error variance. Also, composite reliability sometimes referred towards validity of the construct [35, 41]. Other than that, estimate of discriminant validity shows the extent to how the indicators of latent variable that is given differs the other latent variable based on its indicators. Hence, correlation among the constructs are required to be lower as compared to the estimates of reliability.

Table 1. Convergent and Discriminant Validity

	Indicators	Loadings	CR	AVE
SCG	SCG1	.843	0.995	0.832
	SCG2	.855		
	SCG4	.802		
	SCG5	.925		
	SCG7	.955		
	SCG8	.922		
	SCG9	.917		
CGI	CGI1	.924	0.902	0.737
	CG23	.912		
	CGI4	.771		
SCM	SCPR1	.822	0.960	0.871
	SCPR2	.955		
	SCPR3	.722		
	SCPR4	.825		
	SCPR5	.941		
	SCPR6	.898		
	SCPR7	.891		
	SCPR8	.981		
	SCPR9	.896		
	SCPR10	.881		
	SCPR13	.882		
	SCPR15	.908		
	SCPR16	.890		
	SCPR17	.901		
	SCPR18	.802		

The next step in inner model assessment is determination of the discriminate validity Discriminant validity is a term which is defined as the extent to which several differing measures of different constructs are evident from each other. In this study, discriminant validity is established after observing the items cross-loading with the loadings. In the present study, discriminant validity was established by comparing the items loadings with cross-loadings as presented in Table 1. To actualize this, experts on path modelling have suggested that all the items loadings should exceed the cross-loadings

Table 2. Discriminant Validity

	1	2	3
SCG	0.948		
CG	0.731	0.798	
SCPR	0.518	0.550	0.801

The next step to the confirmation of reliability and validity is the development and estimation of structural model therefore after confirmation of reliability and validity, the SEM was used to analyze the hypothesis. The direct and indirect effect was examined. Indirect effect was examined to check the mediation. In this process, the p-value was considered. While analyzing the data, 0.05 minimum level of p-value was considered to test the hypothesis. After ascertaining the measurement model, the present study assessed the structural model. In doing so, the present study employed standard bootstrapping procedure with 500 bootstraps samples and 249 cases to determine the significance of the path coefficients. This was carried out by following the guidelines provided by the eminent scholars in their recent studies). According to the direct results, it is shown that all hypothesis has a p-value less than 0.05. Thus, the hypothesis 1 related to supply chain financial risk and supply chain management is significant, and results of the second hypothesis sis also in consistent with the proposed hypothesis as the supply chain operational performance is in significant positive relationship with supply chain performance. The direct results of the current study are shown in table 3

Table 3. Direct Effect

	(β)	SD	T-value	P-Values
H1	0.411	0.235	4.221	0.000
H2	0.357	0.152	3.618	0.000
H3	0.427	0.232	4.518	0.000

Along with the direct relationship between corporate governance and supply chain management, the current study is also interested in investigating the mediating rating role of supply chain governance in the relationship between corporate governance and supply chain performance. The results of the mediating effect of supply chain governance is shown in the table 4. These results of moderation show that for both mediation hypothesis, the t-value is above 1.96 and p-value is below 0.05 which accept H3.

Table 4. In-Direct Effect through Mediation

	(β)	SD	T-value	P-Values
H4	0.322	0.121	4.311	0.000

Additionally, the predictive relevancy of Q2 is also examined besides evaluation of the predictive accuracy criteria. Just as the approach of effect size, in order to assess the values of R2, the Q2 values are measured to calculate the effect size of q2. The criterion of goodness of fit for PLS-SEM is also done for the current study as examined in the previous researches. Brief discussion of the relevant statistics is included in the next section to help interpreting the results of PLS. The path modelling experts suggested that the loadings for all items must exceed its cross loadings. The f2 i.e. effect size is observed in order to evaluate the value of R2 i.e. endogenous construct

5.0. Conclusion

The need for the services of supply chain organization comes from the fact that, it generates scale and leverage, delivers profitability at the bottom line, manages and adjusts risk, and follows the environment friendly and regulatory agenda, which is a major challenge for centralization. A method to assist Supply Chain governance is to introduce Chief Supply Chain officer (CSCO) in acceptance of the considerable role which it plays in enhancing business performance around the globe. In recent years, significance of the role of CSCO have been increased in corporations and became more strategic with time. Due to companywide leverage and standardization, compliance pressures, globalization and factors of risk have stimulated a trend of centralization for supply chain operations, As a tool of management, the Supply chain governance is increasingly gaining importance to not solely act as a corporate responsibility and sustainability measure but also actively achieve opportunities for cost savings and avoidance breaking all the norms. The supply chain management has emerged as a key competitive tool, however, little or no attention has been given to explore the link between supply chain governance, external corporate governance mechanism such as board characteristics and supply chain performance. Therefore, the current study is being carried out explore the relationship among three interlinked phenomena such as external corporate governance, supply chain governance and firm supply performance. It is argued in this study that the supply chain governance mediates the relationship between corporate governance firm supply performance. The SMART-PLS is used to achieve the objective of the current stud. The data is collected from the operation managers, production managers and finance managers of manufacturing firms listed in Indonesian Stock Exchange. The results of the study have shown a great deal of agreement with our proposed hypothesis. Meanwhile the findings have provided support to the predictions of agency theory and resource-based theory. The study which is among pioneering studies on the issue will be helpful for policy makers and managers in

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