

# The Role of the Risk Management Committee in Managing Supply Chain Risk and Enhancing Supply Chain Performance: An Emerging Market Perspective

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**Abstract**— The prime objective of the current study is to examine the role of the risk management committee in managing the supply chain risk and enhancing the supply chain performance. The three risk measures namely supply chain technology risk, supply chain integration risk and supply chain integration risk are used to conceptualize the firm supply chain risk. The risk management committee is one of a feature of the code of corporate governance which during the last couple of years have widely discussed in the literature in the reference of financial risk management. However, little or no attention has been given to explore the issue with the reference of operational risk management, especially in supply chain risk management. This is among the few pioneering studies being carried out to explore the direct role of risk management committee on firm supply performance and its moderating role on firm supply chain risk and firm supply performance. The SEM-PLS is used to achieve the research objectives. The data is collected from the operation managers of Indonesian based production firms operating in Indonesia. The results of the study have shown a great deal of agreement with our proposed hypothesis. Except the supply chain integration risk, all other measures of risk are in a significant positive relation with firm supply performance whereas the supply chain integration risk appears in negative and significant relation with the firm supply chain performance. The current study will be helpful for PR actioners, researchers and policy makers in understanding the link between operational management and corporate governance.

**Keywords:** Supply Chain Risk, Firm Supply Chain performance, Risk Management committee, Indonesia

## 1.0 Introduction

From the last couple of decades especially in the postmodern era of business, the corporations have seen a rapid transformation in the business processes. The increasing role of innovation and technology has made the least predictable markets into erratic [1]. The increasing role of technology has not changed the business dynamics but also placed a significant impact on markets [2]. The response time is reduced, customization is at peak, the media is vibrant, and satisfaction is impassive. All these are continuous threats to the sustainable competitive advantages of any firms [2]. The function which has emerged as a tool for sustainable competitive advantages is supply chain management [3]. The supply chain is a function which is linked with almost all organizational functions [4]. The supply chain is a chain-like structure which connects all the stakeholders [3].

The enormous challenges such as flexibility in production, increasing inventory cost, time and quality are offering continuous threat as well as opportunities for the firms in achieving sustainable market position [5]. The Wall mart a leading retail chain and among top 10 in fortune 500 has achieved its “everyday low price” by introducing cross doc inventory strategy. This strategy has offered the wall mart production flexibility, lowered the cost, reduced the order time and improved the quality [2]. The above said criteria are interchangeably used as the hallmarks of supply chain performance [3].

During the last decades, the supply chain's management has acknowledged a great deal of interest by researchers and practitioners in the postmodern era of the business world. The SCM has merged as the key to sustainable development and success of any manufacturing firm. Realising the increasing importance of SCM, it can be argued that the SCM has emerged as a universal way across industries since it addresses seller-buyer partnerships, shared planning, continuing strategic coalition, control of inventory cross-organizational, information sharing and logistics management. SCM adopts systems perspective across firms and functions as an absolute system by processes of coordination, which helps a firm in developing a collaborative system which in turns add value to the firm. Efficient SCM will lead to provide the necessary level of customer service to a specific segment by reduction of the entire amount of resources and enhancing customer services through improved product availability and reduced order cycle time [3], [4], [5]. It is characterized through the information exchange, operations, cross-firm forecasting and shared planning with downstream partners. Meanwhile, Ali et al. [6] highlighted that outsourcing also opens the door to practising SCM as tools and plays a beneficial role to make SCM more effective and efficient. In SCM to serve clients, the upstream company is direct to suppliers and downstream to distributors.

The performing supply chain is defined as a supply chain the organization core standards of performance which include everything related to cost saving and delivery, production, etc. Supply chain management (SCM) has received increasing attention from industrialists in light of strategic planning in the design, maintenance, and operation of the supply chain process. However, the supply chain efficient has been subjecting of concern. The reduction of cost and agility are discussed as pre-conditions of efficient supply chain management.

In SCM to serve clients, the upstream company is direct to suppliers and downstream to distributors. Generally, labour, capital, information, technology, materials, financial assets and other resources through the supply chain. Given that the goal of a company is to capitalize on profits, the companies must reduce costs and exploit benefits along the supply chain [7]. Physical logistics more dependent on information technologies, and these technologies enable of further cooperative arrangements. Chima

and Hills [7] states that firms faced an interdependence and shared fortune when the management of an extended enterprise as a network of processes, relationships and technologies creation. Thus, the environment of supply chain management becomes apparent to participating companies with victorious implementation in the dynamic, comprehensive environment of the business world, augmenting with risks, and it greatly affects the processes of the decision-making in business management. Environmental uncertainties lead to a need for high dependability and flexibility within the planning and control systems and production systems in the supply chain. Reducing this variability can be achieved by identifying the root causes and how they interrelate with each other. Changes in products, technology, competitors and markets are occurring at an increasingly rapid pace. Therefore, managers must acquire decisions on quick notice, with high costs, and with lack of information. Hence, a consistent and flexible system are vitally needed to support the management decision making for their companies whether to be the make-or-break.

The corporate governance has emerged as one of the significant determinants of firm performance [7]. The risk management committee which characterised as the committee to control the managerial risk-taking behaviour has emerged as an efficient platform for effective risk management. The risk management committee is not only concerned with the financial risk rather the operational risk is also under the subject of risk management committee [7]. Therefore the current study is planned to examine the moderating role of the risk management committee in the relationship between supply chain risk management and supply chain performance. In addition to that, we are also interested in knowing the direct relationship between supply chain risk and supply chain performance and between risk management committee and supply chain performance.

## 2.0. Literature Review

### 2.1. Firm Supply Chain Performance

A performing supply chain is one which can offer products with various specifications have complex supply chain and successful in implementing lean supply chain concept which advocates low cost with minimal lead time. Qi et al. [8] worked on the relationship between supply chain strategy and firm

performance and explored a positive relation with arguments that supply chain strategy enhances supply chain responsive and increase production flexibility which in turn affect performance. Qi et al. [8] shown consistency with Whybark et al. [9] and Hines [10] as they also declared supply chain responsiveness a major determinant of performance.

To achieve supply chain goals employment of the most appropriate course of action is prerequisite and it should be consistent with the firm's long-term strategy. Leading firms like Toyota and Wall Mart are using this method to achieve their supply chain goals. But it is not that it always works firms like Barilla Spa and Hewlett-Packard are badly affected by this method. Shih et al. [11] solved this issue with an argument that these practices should be consistent with supply chain strategy and goals.

Supply chain management (SCM) SCM has many challenging problems due to the nature of the industry such as specialization of work and the fragmentation of the overall process among supply chain members [12] increasing reliance on suppliers performance; and dynamic changes of suppliers. To compete successfully in the global market economy, firms gradually find themselves dependent on having effective supply chains [13]. As a result, performance can no longer be determined exclusively by the decisions and actions that occur within a firm. Many of the operational research scientist have shown the consensus on the common goals of SCM. Kaufman and Ülkü [14] declared the removal of communication barrier and eradication of redundancies as ultimate goals of SCM. Later Choon et al. [15] defined waste reduction, synchronized operation, delivery performance, quality management, and flexibility in production as SCM goals. Kaufman and Ülkü [14] also confirmed Choon et al. [15] and added customer satisfaction, time cost, where housing and supplier relation as SCM goals in literature.

Hence, in last decades SCM has emerged as an integrated approach, which ensures defined waste reduction, synchronized operation, delivery performance, quality management, flexibility, customer satisfaction, time cost, where housing and long-term supplier relation [16] to achieve competitive advantage [14], [17] enhance effectiveness [16]. Though supply chain collaboration can be operationalized in many form, but according to Holweg et al. [18] the most significant and important is one which speeds up the demand and supply by bringing overall efficiency in whole supply chain. But failed or ineffective operationalization of supply chain collaboration can bring cost inefficiency [16].

Supply chain integration effectiveness can be measured by the successful integration of all internal and external supply chain members into a supply chain network with shared strategic vision [14].

Merely integration is not enough, customer satisfaction, cost reduction, and sustainable product quality are most important. Though you are sometimes trying SCM implementation results, some failures [14],[19] managers and researchers paying attention to them and concepts suggested by Kaufman and Ülkü [14] are the solutions to this issue.

## 2.2. Risk in Supply Chain Performance

The corporations around the world are focusing on the development of models to mitigate the risk arising in various forms. The dynamic environment of the business world is bringing many unique challenges and forcing the corporation to develop a unique set of strategies to manage and mitigate the risk [14],[2]. The researchers [2] with different theoretical models have tried to explore the risk events and their plausible solutions. One of the risk factors which emerged in the limelight during the first decade of the twenty-first century is supply chain risk. The procurement failure, technological advancement, failure in integration and risk management strategies are initially or collectively discussed as key events leading to supply chain risk failures [20]. However, according to [2] the cost-effectiveness and mitigation of the cost risk has been a key focus of researchers, and the impact of risk management practices, supply chain technology risk and supply chain integration risk has largely been ignored.

According to Speier et al., [21] the tightly and loosed and supply chain both have cost and benefits. Earlier the emphasis was being placed on the tightly coupled supply chain. However, later because of risks such as disruptions, and process slack, there is a paradigm shift, and new definition of integrations are under discussions. Thus, according to Blome and Schoenherr, [22] the integrated approach of risk identification and analysis with the underlying objectives of mitigation or acceptance of uncertainty assorted with supply chain operations is known as supply chain risk

The twenty-first century because of technologically advance production, globally spread mass media, and well aware customers have witnessed an intense competition. In response to intense competitive pressure in the business world, organizations are facing numerous challenges to attain sustainable competitive advantages. The ultimate goal of all kinds' types and size of organizations is to provide a high-quality product with shortened lead time and high responsiveness to its consumer [20]. Therefore production flexibility with improved agility level has become an important subject in an ever-changing market; many companies found

outsourcing by decentralizing their production as a solution to this problem and focus is to create virtual enterprises. This shows how information technology is changing market determinants and management styles. But to meet customer need and come up with the same quality from all outsourced, information sharing among all partners is of great importance. In a survey about planning and implementation of SCM initiatives from managers of about 300 firms which were involved in supply chain related activities, the researcher found planning as strong deterrent of managerial activities as 92 % of managers were planning to implement about two supply chain initiatives. The explanation of the importance of information management in SCMP is incomplete without highlighting the emerging paradigm of supply chain design and management. This emerging paradigm emphasis on inclusion of advanced information technologies for communication and data interchange, the complexity of SCM function is also a reason for this concept [23]. Thus, we can argue that the supply chain risk in the form of supply chain integration risk, supply chain technology risk, and supply chain risk management implications are significant determinates of firm supply chain performance. Based on the literature reviewed we have proposed the following hypothesis.

***H1: Supply chain integration risk has a significant impact on the firm supply chain performance.***

***H2: Supply chain technology risk has a significant impact on the firm supply performance***

***H3: Supply chain risk management implications has a significant impact on the firm supply performance***

### **2.3. Risk Management committee and supply chain risk and supply chain performance**

The RMC is viewed as the team to oversee the risk management profile as a whole. Hence, its status as a board committee is more credible to the stakeholders, especially the shareholders. Risk management is a culture, process and structure and should be designed to identify, assess, monitor and manage risk while Keizer [24] identified the RMC as a 'team sport' and recognised the team as the board's risk oversight committee. If the RMC is recognised as the board's risk oversight committee, hence establishing the RMC is seen as a good initiative for managing the company's risk profile. The risk is a concept used to express future uncertainty for the events and outcomes that contain material effect on the goals of the organisation .

However, Hespenheide, Pundmann and Corcoran [25] identified an intelligent risk approach which accepts risk as necessary for doing business and proactively addressing it. A company, however, may evaluate the type and level of risk before it is adopted as a necessary condition in business operations.

The RMC's scope of work includes the intelligent risk approach that informs the board and management of the key risks associated with the company's business. The approach, including strategic and tactical actions, if practised well in the company, can be successful in creating value for the company [26]. Risk management not only adds value to the company or organization, but it also creates economic growth by decreasing the cost of capital and activities related to commercial uncertainty [27].

Thomas and Griffin [28] highlight the development of SCM as concepts and advocates SCM as concept operational of activities i.e. purchasing, distribution, warehousing, procurement and other supply chain activities are at the most developed stage. SCM as a function of operational activities i.e. searching for quality goods, purchasing the goods processing the goods, storing the goods and distribution of goods is as old as commerce. However, SCM at the strategic level is one of the emerging concepts of operation management and emphasizing customer satisfaction via providing a quality product through effective SCMP. Supply chain strategy is defined as a set of goals and objectives of firms and its supplier to overcome competitive market by adding value to business operations [23]. Demand assessment which includes the nature of demand and demand for casting is a first and most important step in developing a supply chain strategy. Thomas, and Peterson [29] continued with an argument production flexibility is strong the introduction of new products in the market is slower from companies with wide product range in comparison with companies with fewer products in the product range.

According to resource dependence theory Organisations depend on multidimensional resources, like labour, capital and raw materials [29]. A previous study was done by Lynall, Golde and Hillman [30] see that in managing the external relationship, the board, as a key organisational body, could provide critical resources and protect the organisation from environmental uncertainties. For scarcity of resources, the board plays an active role in searching for crucial resources and reducing the pressure from other organisations by engaging in inter-organisational relationships [29]. In inter-organisational relationships, the board can provide external information, access to external institutions, expert knowledge and advice.

According to agency theory [31], the risk management committee plays a key role in defining the risk-taking behaviour of any firm. The prime objective behind the formulation of RMC is to make sure that the managers are effectively and efficiently dealing with the risk. In past majority of the studies have studied the role of RMC in determining financial risk, whereas no or little attention has been given to explore the impact of RMC on other segments of organizational risk such as supply chain risk. Therefore, to fill the said gap, the current study has developed the following hypothesizes

**H4: RMC has a significant impact on the firm supply performance.**

**H5: RMC moderates the relationship between Supply chain integration risk and firm supply performance.**

**H6: RMC moderates the relationship between Supply chain technology risk and firm supply performance.**

**H7: RMC moderates the relationship between Supply chain risk management implications and firm supply performance.**

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.

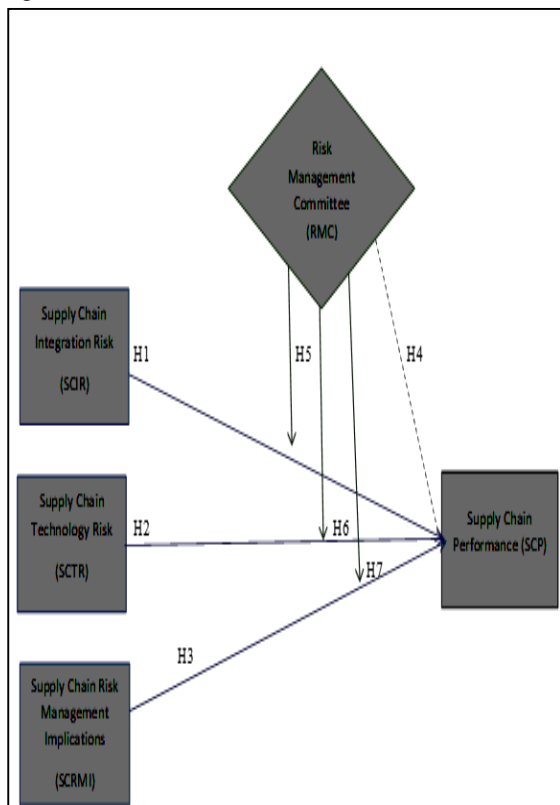


Figure 1: Conceptual framework

### 3.0. Methodology

This study carried out on operation managers who were chosen from the production firm operating in Indonesia. The number of aggregate academicians was 440 for this examination information was gathered by pre-planned questionnaires to every one of the 440 managers. The required number was sent to the departments for dispersion. Respondents were stiff-necked. They returned the questionnaire within the period. This procedure took four weeks to gather every one of the questionnaires from the respondents. In this study, researchers have used the questionnaire method for collecting data. This questionnaire is divided into four sections which the entire question was conducted in English. Section A in this questionnaire asked about the respondent background. Gender, ethnicity, educational level, age, marital status, length of services, job category and income (per monthly) were asked. Meanwhile, the question from Part B, C and D are the part of the instrument that tested for this study. The measurement scale for all the section is based on the Likert Scale of 1 to 5, where 1 = strongly disagreed, 2= disagreed, 3 = neutral, 4 = agreed and 5 = strongly agreed.

The instruments of the study have been taken from the prior studies of supply chain performance Basheer et al., [2], supply chain risk Weingarten et al., [32] and risk management committee from the Cohen et al. [33]. 440 respondents were selected to distribute questionnaires. Three hundred twenty-nine questionnaires were received out of 298; the response rate was 91 per cent and hence accepted for further evaluation. Respondents' average age was 47 years, and around 60 percent of them were working in operation departments from last 15 plus years. The greater part of the respondents was held highest degrees; the response rate is above the threshold of 45-50 percent [34], [2]. Male respondents were 252 and the female was 45. The average working experience was 13.5 years.

### 4.0. Research Analysis and Discussion

According to Hair et al., [34], 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. According to Hair et al., [34], Hameed et al. [35]-[37] and Basheer et al. [2] PLS-SEM is one of the robust and most reliable statistical technique. Therefore, this study adopted PLS SEM to analyses the data. Before testing the hypothesis, data reliability and validity was scrutinized. These steps were taken through PLS 3. It is revealed in Table 1 which shows that factor loading is more than 0.5, average variance extracted (AVE) is more than 0.5 and composite reliability is also more than 0.7. Therefore, it is revealed that the current study attained convergent validity.

Table 1. Convergent and Discriminant Validity

	Indicators	Loadings	CR	AVE			
<b>SCIR</b>	SCIR1	.722	0.915	0.812			
	SCIR2	.955					
	SCIR3	.990					
	SCIR5	.825					
<b>SCTR</b>	SCTR1	.843	0.895	0.772			
	SCTR2	.855					
	SCTR4	.802					
	SCTR5	.925					
<b>SCRMI</b>	SCRMI1	.884	0.932	0.617			
	SCRMI3	.955					
	SCRMI4	.903					
<b>SCP</b>	SCP1	.822	0.910	0.671			
	SCP2	.855					
	SCP3	.722					
	SCP4	.825					
	SCP5	.841					
	SCP6	.800					
	SCP7	.880					
	SCP8	.881					
	SCP9	.826					
	SCP10	.821					
	SCP13	.882					
	SCP15	.928					
	SCP16	.840					
	SCP17	.921					
	SCP18	.882					
	<b>RMC</b>	RMC1			.821	0.925	0.719
		RMC2			.882		
		RMC3			.928		

The discriminant validity is shown in Table 2. Discriminant validity is attained through the square root of average variance extracted (AVE). It is shown in Table 2 that square root in bold form is more than all other values.

Table 2. Discriminant Validity

	1	2	3	4	5
<b>SCIR</b>	0.948				
<b>SCTR</b>	0.731	0.798			
<b>SCRMI</b>	0.518	0.550	0.801		
<b>RMC</b>	0.628	0.650	0.743	0.650	
<b>SCP</b>	0.627	0.730	0.823	0.734	0.821

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 analysing the data, 0.05 minimum level of p-value was considered to test the hypothesis. According to the direct results, it is shown that all hypothesis has a p-value less than 0.05. Therefore, it accepts H1, H2, H3 and H4.

Table 3. Direct Effect

	( $\beta$ )	SD	T-value	P-Values
<b>H1</b>	0.111	0.035	3.161	0.002
<b>H2</b>	0.207	0.043	-4.810	0.000
<b>H3</b>	0.447	0.109	-3.999	0.025
<b>H4</b>	0.467	0.132	3.978	0.027

Moreover, Table 4 highlights the moderating effect of Risk management committee between the independent variable (supply chain risk) and the dependent variable (supply chain performance). 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 H5, H6, and H7.

Table 4. In-Direct Effect through Mediation

	( $\beta$ )	SD	T-value	P-Values
<b>H5</b>	0.109	0.018	4.319	0.000
<b>H6</b>	0.129	0.016	5.339	0.000
<b>H7</b>	0.112	0.021	6.331	0.000

Moreover, variance extracted is shown in Table 5. R-square value is 0.562 which is moderate according to Chin (1998). It indicates that all the independent variables are expected to bring 56.2% change in the dependent variable, namely; supply chain performance.

Table 5. Expected Variance

	R <sup>2</sup>
<b>SCP</b>	44.1%

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

## 5.0. Conclusion

The prime objective behind the current study was to investigate the relationship among supply chain risk, risk management committee and firm supply performance. The three-risk measure namely, supply chain technology risk, supply chain integration risk and supply chain risk management implications are used in this study. Following the conceptualization of agency theory and resource-based theory, the current study has used the RMC as moderator. The authors have used the survey-based methodology to achieve the research objectives. The Smart PLS is used to achieve the objective of the research. The findings of the current study have revealed the fact that the majority if the respondent has shown a great deal of agreement with our proposed hypothesizes. The results of the first three hypotheses of the study indicate that when the technology risk and risk management implications risk will increase the performance decrease. Whereas when the integration risk will increase it will enhance the performance. The RMC also appears in a significant and positive relationship with supply chain performance which indicates that the effectiveness of the code of corporate governance in the form of function RMC is significant deterrent of supply chain management performance and the positive relation indicates that the performance of TMC has a significant positive impact on the firm supply performance. Similarly, the RMC appears as string moderator between the supply chain risk and firm supply performance. Lambert [13] assumed that the agent generally acts on his or her interests. However, Basheer [31] that managers are not opportunistic but are motivated to act in the interests of their organizations to maximize the shareholders' wealth by increasing organizational performance. The agency theory is focused on human behaviour whereby the relationship between principal and agent is at a crucial point [31]. Regarding board committee structure, Chau and Leung [36] supported the agency theory that the board characteristics, such as its independence and the emergence of independent chairman are potential factors affecting board structure. The other major theory of corporate governance is the RDT. The RDT links the organization and external resources. They argued that an organization depends on resources which are a basis of power. However, those resources are often in the hand of other organizations or firms. As a result, the external resources become critical and crucial to the organisation which needs those resources at the same time. Therefore, the results of the study are in agreement with these two theories.

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