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## Supply Chain Risk Mitigation Strategies and Its Performance of SMEs

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### Abstract

The purpose of this paper is to examine the association between supply chain risk mitigation strategies and its performance of Small Medium Enterprises (SMEs), in South Indian textile units. The research method was used in explanatory analysis and the primary data was collected by structured questionnaire from 60 respondents of SMEs. Result shows that a positive relationship between mitigation strategies and supply chain performance.

**Keywords:** Supply Chain Risk Management, SMEs, Textile

### 1. Introduction

Today's marketplace is operated by turbulent and uncertainty condition. Market turbulence has tended to number of reasons including demand uncertainty, shorten product and technology life cycle, lack of skilled labor, production constraint and lack of innovation. Of late, the subject of supply chain management has been paid a good attention among the researchers and industry experts. Every organization is having a vision that maximizes the customer value and achieves a sustainable competitive advantage. In order to achieve the vision, there are many bottlenecks or risks that can adversely affect the supply chain performance<sup>1</sup>. Risks have always been a part of a firm's operation and adapt common strategies to mitigate these risks.

Global perspectives of SMEs act is an important element of economy growth. These SMEs bring numerous advantages to developing country like India in terms of creating jobs; increase the average income of a person, and innovation. Due to volatile customers demand and pressure from the competitors, businesses today have restructured themselves and respond to operate on a global basis to take advantage of global product, technology, factors and capital markets. However, there are several issues in operating globally like political, social, economic and cultural. A firm is operating in a global basis and their supply chain network becomes more complex. There are many risks in supply chain irrespective of sizes of the company. These are

categorized into supply risks, demand risk, internal risks and external risks. These types of risks are common to small and large scale enterprises. Large scale enterprises have faced risks in their supply chain and apply proper strategies in order to mitigate these risks. In connecting with, SMEs don't have a proper risk management practices<sup>2</sup>. They face abundant hidden and unhidden risks in supply chain. The risks are poor quality raw materials, and its price volatility, capacity shortage of suppliers, supplier failure to delivery, machine failures, poor production planning, limited investment, volatile demand, and increase customs duty<sup>3</sup>. In order to mitigate these risks, SMEs has to be found suitable strategies. The area of SCRM is essential for Indian SMEs to facilitate them sustain their business and mitigate current potential risks and challenges. The author is evidently noticed the supply chain risk management to SMEs as the advanced in innovation and technological up gradation<sup>4</sup>. This advancement is crucial to SMEs for bolstering the country's economy<sup>5</sup>.

## **2. Research Objectives**

1. To study about the profile of Small Medium Enterprises (SMEs) in South Indian Textile units
2. To find the relationship between supply chain risk mitigation strategies and firm's supply chain performance.

## **3. Research Methodology**

This paper aims at studying the association between the supply chain risk mitigation strategy and supply chain performance with respect to Small Medium Enterprises (SMEs) of textile units in south Indian textile units. The population was 6250 textile units in Tiruppur under six different operations. Sample size was 60 taken based on proportionate stratified random sampling. Data was collected a structured questionnaire among SMEs from textile segments. This structure questionnaire was in the form of five points Likert scale.

## **4. Literature Review**

### **4.1. The concept of Supply Chain Management**

Supply chain Management can be defined as managing the entire chain - that is interconnected between product, process and members. It begins from supplier, manufacturer, wholesaler, retailer and end customer. This chain process is not only for the movement of inventory from one origin to another origin, but also movement of money as well as information in both direction. Author stated that Supply chain management is a key strategic factor for

progressing organizational effectiveness and to achieve corporate objectives<sup>6</sup>. There are five major activities in supply chain management, include: (1). Plan; (2). source; (3) Make; (4) Deliver and (5) Return<sup>7</sup>. In each of the activities, the different types of risks exists. It influences the entire supply chain.

#### **4.2. The concept of Supply Chain Risks Management (SCRM)**

SCRM or Supply Chain Risk Management is defined as the risk management efforts of entire firm's supply chain coordination and collaboration with among the members in order to ensure certainty of profitability and sustainability of the business. Authors described "*Supply Chain Risk Management is the intersection of supply chain management and risk management. It has a collaborative and structured approach, and is included in the planning and control processes of the supply chain, to handle risks which might affect the achievement of the supply chain goals*"<sup>8,9</sup>. Risks in Supply Chain and Mitigate risk approach that aim to support the management of demand, supply, products and information<sup>10</sup>. The role of supply chain risk management is an integration of supply chain partners; implement the risk management tool in order to cope with risk and uncertainty events in supply chain<sup>11</sup>. Further, this risk management process aid to mitigate the risks in the supply chain. SCRM is the competency of an organization to recognize the potential risks, assess the risks and to reduce the risks in supply chain<sup>12</sup>. Risks in supply chain with the likelihood and negative impact of imbalances of supply and demand<sup>13</sup>. Another study articulated the identification of potential supply chain risks and mitigate with suitable strategies<sup>14</sup>. A consistent SCRM practices to increase the risk performance<sup>15</sup>. The flow of supply chain risk management can be divided into five categories, which are risk identification, risk assessment and evaluation, selection of risk management strategies, implementation of strategy, and mitigation of supply chain risks<sup>16</sup>. However in this study, the researcher will focus on risk mitigation strategies and supply chain performance.

#### **4.3. Risk Mitigation Strategies**

There are two types of supply chain risk mitigation strategies which are proactive and reactive<sup>17, 18</sup>. The proactive as preventive that is before risk occurs take an appropriate action, whereas reactive is defined as the action taken after the event occurred that is after the risky events take a step to recovery from the uncertain situation<sup>19, 20</sup>. During the supply chain uncertainty events, organizations may use either proactive or reactive or both to handle the situations. Many SCRM studies have addressed mitigation strategies to handle the supply chain risks such as collaboration with key suppliers<sup>21, 22</sup>, sharing knowledge and resources<sup>23, 24</sup>, finding universal source of suppliers and faith and integration among the partners<sup>25, 26</sup>. The

various supply chain risk mitigation strategies practiced by organizations such as robustness' resilient strategy<sup>27, 28, 29</sup>, lean strategy<sup>30</sup>, agile strategy<sup>31,32,33,34</sup> and flexible strategy<sup>35, 36</sup>. They emphasized that robustness and agile strategies which are used to significantly improve the supply chain performance<sup>19</sup>. For taking this point, this paper is critically examine the relationship between strategies and performance of supply chain. In order to test the association between these variable, the author formulated the hypothesis.

**H<sub>a</sub>:** There is a positive association between risk mitigation strategies and firm's supply chain performance.

**5. Findings and Analysis**

**Table 1 Demographic Profile if SMEs**

<b>Number of Years Experience</b>			
<b>S. No</b>	<b>No. of Years</b>	<b>Frequency</b>	<b>Percentage</b>
1	1 year-5 years	8	13.3
2	6 years-10 years	16	26.7
3	11 years- 15 years	21	35
4	16 years -20 years	9	15
5	21years - 25 years	4	6.7
6	More than 26 years	2	3.3
<b>Total</b>		<b>60</b>	<b>100</b>
<b>Total Investments</b>			
<b>S. No</b>	<b>Total Investment</b>	<b>Frequency</b>	<b>Percentage</b>
1	6-10 lakhs	4	6.6
2	11-15 lakhs	13	21.7
3	16-20 lakhs	43	71.7
<b>Total</b>		<b>60</b>	<b>100</b>
<b>Number of Employees</b>			
<b>S. No</b>	<b>Number of Employees</b>	<b>Frequency</b>	<b>Percentage</b>
1	1-5	6	10
2	06 to 10	14	23.3
3	11 to 15	14	23.3
4	Above 15	26	43.4
<b>Total</b>		<b>60</b>	<b>100</b>

From the data it may be observed that about 35 % of the SMEs fall in the 11 years to 15 years experiences and 26.7% of the SMEs is having 6 years to 10 years experiences and only 3.3 % of SMEs fall more than 26 years experiences in textile fields. From the data it may be concluded

that about 71.7 % of the SMEs invested more than 16 lakhs and only 6.6 % of the SMEs invested only below 10 lakhs. From the data it may be observed that about 43.4 % of the SMEs are holding more than 15 employees and only 10 % of the SMEs are having below 5 employees.

The simple regression analysis was used to test the hypothesis. The table no: 04 manifested there is a positive association between supply chain risk mitigation strategies and its performance in which the significance value is (p=. 000) and F value is equal to 32.391. Results show that  $R^2=0.329$ . It indicates that 32.9 % of the total discrepancy in supply chain risk mitigation strategies contributed to its performance. The coefficient value of t -risk mitigation strategies is 6.236 and the significant value is (p=.000). This finding stated that the association between risk mitigation strategies implemented by the textile units of SMEs and their performance of supply chain. According to Table 05 show that the constant value is 0.172, which addresses that there is some other factor that cause to the supply chain performance. Hence, supply chain risk mitigation strategies influenced the firm’s supply chain performance with the value of 0.524. The results proposed that risk mitigation strategies have a positive association with supply chain performance.

**Table 2: Regression Analysis**

Independent Variables/ Dependent Variables	R	R <sup>2</sup>	F	Significance
Risks Mitigation Strategies/ Supply Chain Performance	0.5735	0.329	32.391	0.000

**Table 3: Risk mitigation strategies t-value**

Model	Un-standard Coefficients		Standard Coefficients	t-Value	Significance
	B	Standard Error	Beta		
Constant	0.172	0.078		2.576	0.015
Risk Mitigation Strategies	0.524	0.083	0.405	6.236	0.000

**6. Limitation and Future research**

The study was limited to textile units in Tirupur district. The sample was restricted. The drawback of this is to find the association between the supply chain risk mitigation strategies and performance of supply chain instead of examine the full process of SCRM. Further, the future research will be carried out by defining the relationship between risk sources, risk assessment and mitigation and performance of supply chain in SMEs.

**7. Conclusion**

This study was to test the association between the supply chain risk mitigation strategies and supply chain performance. In addition, robustness strategies were used to mitigate the risks in upstream of supply chain and agility strategies were used to mitigate the risks in downstream of supply chain. It is additionally noticed that these strategies have a positive association with supply chain performance.

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