



## **Supply Chain Risk Management In Retail Industry: A Systematic Review**

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**Abstract.** In today's global markets, categorized by enormously fast modifications in technology and customer's demand, and by product life cycle getting shorter and shorter, a single firm has not the ability to be competitive if it is not included in a network that, operating as a single entity, is able to react to demand energy and unpredictability. Therefore, existing supply chains, designed in a global sourcing view, are highly vulnerable to worries resulting from a strong dependence on other network's players, such as suppliers or logistics providers. In this difficult and competitive context, properly measuring and managing risks connected to the different stages of the value chain, as well as external and not directly controllable risks, means being able to ensure connection in supply. This paper attention on the particular field of the retail industry since its highly unpredictable demand and particularly short life cycle make it very important to examine risks connected to the supply chain. In fact, more suitable for real composite problems that cannot be completely denoted through a simple classified structure. The achieved results show that supply chain efficiency, in terms of correct management of both material and informative flows, is considered the most important part also for a demand-driven supply chain as the retail industry one which, in adding, is constantly looking for customer tastes and always changing trends.

**Keywords:** Risk Definition, Risk Detection, Risk Management, Risk Mitigation

## **1. Introduction:**

In today's increasingly risky and uncertain business and industrial environments, supply chains need to be more flexible and more robust to improve their performance. During the last decade supply chain risk management has emerged as a challenge on the strategic and operational supply chain issues. A deeply analysis of a has revealed that modern retail industry needs decision support tools to manage supply chain risks. These tools should cope with emerging practices and integrate many categories of risks.

In recent years, supply chain disruptions have impacted the performance of companies. Firms increasingly depend on a complex network of global partners to deliver products at the right time and place, in the right quantity, and under persistent cost pressures (Datta, 2011). For instance, the Japanese earthquake and tsunami in 2011 caused not only a local disruption on supply and demand, but also a manufacturing slowdown in European and North American countries where they need Japanese suppliers' inputs (MacKenzie, 2012). According to a recent study by Aon Risk Solutions, the percentage of global companies reporting a loss of income due to a supply chain disruption increased from 28% in 2011 to 42% in 2013 (Sáenz, 2014). Supply chain risk management (SCRM) has become a very important area of study. In order to control and mitigate the negative effects caused by such risks, a significant amount of work in the area of supply chain risk management (SCRM) is undertaken in both academia and practitioner circles.

To mitigate the negative impacts of supply chain risks, various strategies, such as redundancy (Sheffi, 2005), dual sourcing (Trkman, 2009), and postponement (Yang, 2010), have been discussed to provide help. However, these strategies employ the focal firm perspective that they are internal practices with inadequate insights on the integration between the firm and its supply chain partners. As supply chain risks specifically refer to risks that transmit among supply chain members and their size and probability can be considerably inclined by supply chain rippling and network effects (Jüttner, 2005), they should be understood and managed as a whole for an end-to-end supply chain (Rao, 2009).

## **2. Objective of the Study:**

The main objectives of this article is to identify the risks involved in the retail industry supply chains from reviews and provide strategies to cope up with the risks.

## **3. Methodology of the Study:**

Review of the literature on supply chain risk and supply chain risk management (SCRM) strategies are presented and discussed. Based on the review the interactions among identified risks and the supply chain performance outcome were presented. The paper has the literature on supply chain risks, risks categories and the risks modeling techniques.

#### 4. Types of Supply Chain Risks

The supply chain risks include “the risks due to the variations of the information and flows of the products, which start since the supplier and lead to the delivery of the finished product to the consumer” (MS, 2004). Review of more than 20 papers highlights four main categories of supply chain risks: Environmental risk, demand risk, supply risk and process risk; Environmental (or external) risk: It can be economic environment, social environment, political environment, legal environment or operational and natural environment. Supply risk: It mainly depends on time delays and reliability of suppliers. It resides in the flow of products from suppliers to the company. The flow of products is not on time or of the required quality and quantity. Demand risk: The risk that the product will not be in demand. It resides in the flow of goods from the company to the customers, and includes the risk of obsolescence, customer dissatisfaction (the risk of shortage) and overstock. Process risk: It resides in all company internal operational activities - production, storage and warehousing or distribution-risk. It affects the company’s internal capability to meet goals and deliver products and services (Mohamed Bahroun, 2015).

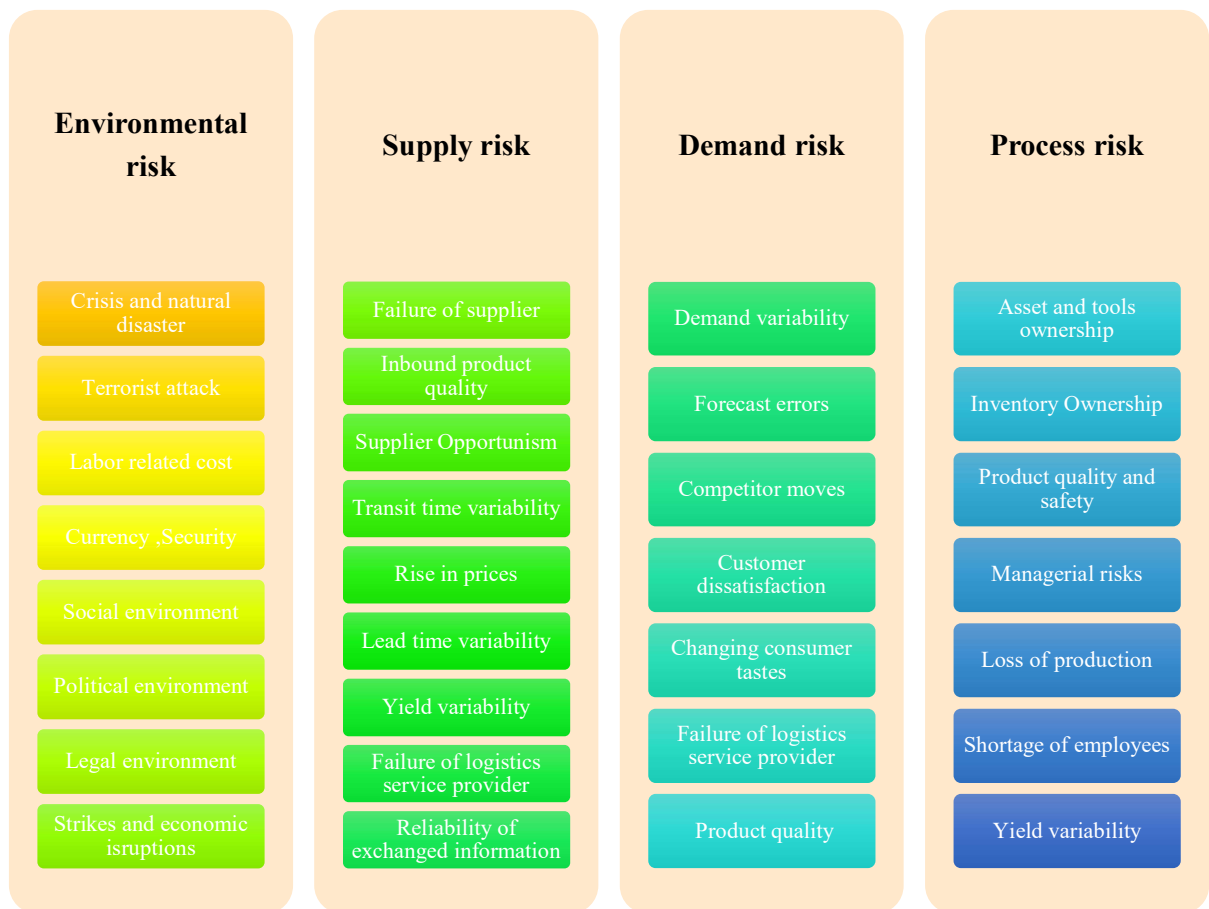
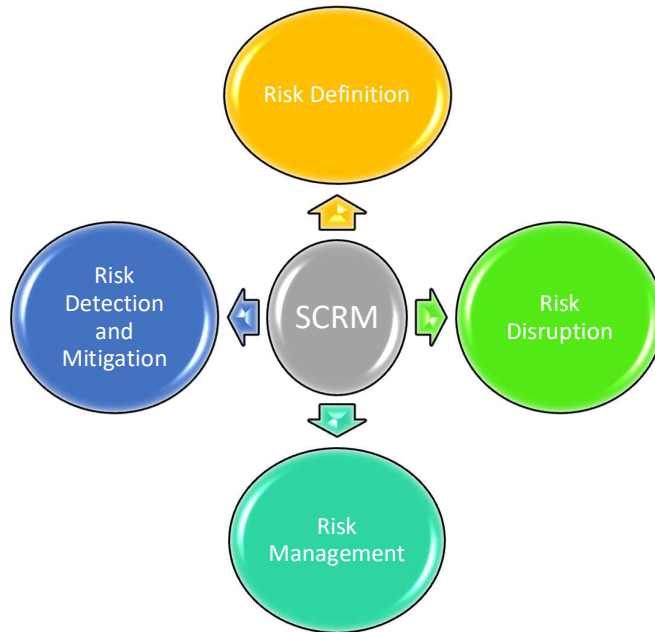


Fig1: Types of Supply Chain Risks

Risk disruption in SCM caused by natural disasters or events which are beyond human control. Risk disruption can occur due to weak supply chain strategies. Risk detection and risk mitigation in the

supply chain network for a contingency plan and supplier evaluation to be carried for reducing risk impact and achieving supply chain resilience (Amulya Gurtu, 2021).



*Fig2: Supply Chain Risk Management*

**Risk Definition:** The management of supply chain risks through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity (Tang, 2006). “Any risks for the information, material and product flows from original suppliers to the delivery of the final product for the end user” (Jüttner, 2005)

**Risk Disruption:** Disruptions in supply chains are evolving to be more comprehensive and recurrent in the business environment. Disruption events are described as when “the tornado hits, the bomb explodes, a supplier goes out of business or the union begins a wildcat strike” (Sheffi Y. , 2005). Some other parameters to classify risks in SCM are: (i) based on the sources of risk and mitigation strategies (Sodhi, 2004), (ii) as organizational risks, environmental risks, and network risks (Jüttner, 2005) (iii) demand and supply risks (iv) industry and organizational risks d (v) network risks, Garvey et al. 2015 as cited in (Amulya Gurtu, 2021)

**Risk Management:** “Risk management refers to strategies, methods, and supporting tools to identify and control risk to an acceptable level”. Additionally, risk management can also be referred to as a synchronized set of actions and approaches to direct an organization to minimize the risk for achieving the organizational goal. (Amulya Gurtu, 2021)

**Risk Detection and Mitigation Strategies:** Risk detection plays a pivotal role before disruption occurs. Force major disruptions are challenging to manage but can be estimated through conscious risk assessment strategies, identifying risk indicators, and applying the principles of Total Quality Management (TQM) in sharing information among SCM partners. Corporations should have

contingency plans in the case of the occurrence of a disruptive event. Strategies to control risk may be divided into seven categories: prevention, rescheduling, conjecture, numerical and economic, vertical integration, risk-sharing, and technology and security (Jüttner, 2005).

## 5. Strategies for Supply Chain Risk Management:

The field of SCRM has originated from the discipline of Enterprise Risk Management (ERM), the process for managing the risks that threaten organizations. SCRM can be defined as “the management of supply chain risks through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity” (Tang, 2006). Review of literature has revealed that there are two main strategies to cope with supply chain risks (MS, 2004)

- Proactive management strategy (preventive): that seeks to identify risk events and to prevent damage before occurring through the analysis of critical scenarios and the decreasing of the likelihood of occurrence of an undesirable risk and the implementation of preventive measures and/or robust chain.
- Reactive management strategy (interceptive): that attempts to limit the impact and consequences of undesirable risk events through corrective actions. This requires reactivity and a very good understanding of all the available alternatives and their impact on the supply chain performance.



*Fig3: Strategies to cope with supply chain risks (MS, 2004)*

SCRM frameworks basically suggest two phases for risk management: • Risk mapping and modeling including risk identification, risk analysis, risk classification, and risk assessing and prioritizing. • Risk mitigation and contingency planning. The risk mitigation options depend very much on the category of risk and supply chain decision makers. Risk transfer, risk sharing, risk avoid and risk accept are the major decision making options. Many strategies have been described in the literature for evolving the coordination and collaboration mechanisms to mitigate the supply chain risks. Agility, flexibility and responsiveness are proposed as ideal generic strategies (Mohamed Bahroun, 2015).

Adopting Leverage the PPRR risk management model, Prevention: Take precautionary measures for supply chain risk mitigation, Preparedness: Develop and implement a contingency plan in case of an emergency, Response: Execute on your contingency plan in order to reduce the impact of the disruptive event, Recovery: Resume operations and get things running at normal capacity as quickly as possible, Manage environmental risk in your supply chain, Improve your cyber supply chain risk management, Looks for ways to improve supply chain visibility, Track the right freight carrier metrics, Implement a logistics contingency plan, Conduct internal risk awareness training, Consistently monitor risk, Use data to model key risk event scenarios and Consolidate your data for easy access.

## **6. Discussion and Conclusion:**

Supply chains form the backbone of the global economy and promote trade, consumption, and economic growth. The changing phases of globalization, lean manufacturing processes, and outsourcing to low-income countries have made supply chain networks more efficient and changed their supply chain risk profile. Due to globalization, inter-supply chain competition has intensified; companies strive to deliver the best value to customers with greater efficiency at the lowest cost; communication with vendors/suppliers will play a vital role in many organizations. The identified strategies might help in further developing the field of SCRM incorporating robust and effective risk management in retail industry.

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