

## Chapter 2

# Supply Chain Risk Management: Literature Review and Future Research

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### ABSTRACT

*Supply Chain Risk Management has increasingly becoming a more popular research area recently. Various papers, with different focus and approaches, have been published since a few years ago. This paper aims to survey supply chain risk management (SCRM) literature. Paper published in relevant journals from 2000 to 2007 will be analysed and classified into five categories: conceptual, descriptive, empirical, and exploratory cross-sectional and exploratory longitudinal. We also looked at the papers in terms of the types of risks, the unit of analysis, the industry sectors, and the risk management process or strategies addressed. The literature review will provide the basis for outlining future research opportunities in this field.*

### INTRODUCTION

The practitioners and scholars believe that the effective supply chain management has become an important enabler to improve organization performance and valuable way of securing competitive advantage (Chirderhouse et al., 2003; Li et al., 2006). The intensifying business competition since 1990s has forced companies to improve efficiency in many aspects of their business. On the other hand, the increasing uncertainty requires

them to spend more resources to anticipate for demand, supply, as well as internal uncertainties for better sustainability of their supply chain. Interestingly, such an increasing uncertainty is not solely induced by the external business environments, but also due to increasing complexity of the supply chain structure and varying mechanism initiated by the supply chains in their business. The trend of companies outsourcing their activities to outside parties has certainly created a new source of uncertainty. The chance of having a delay in raw materials delivery is increasing if a company relies to outside parties to do most of the inbound

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logistics activities. Likewise, the trend of supply base reduction has exposed some companies to more risks than the associated benefits.

The supply chain risk management (SCRM) has been a new development within the supply chain management area that reflects the increasing needs for companies to buffer their strategic as well as operational activities against unpredictable, harmful events within their supply chain. Faisal et al (2006) and Tang (2006) believe that effective supply chain risk management (SCRM) has become a need for companies nowadays. Companies like Ericsson (Norrman and Jansson, 2004) and Nokia (Li et al, 2006), have long realized the need for an effective risk management in their supply chain operations. According to Chopra and Sodhi (2004), the supply chain risks could be in the form of delays of materials from suppliers, large forecast errors, system breakdowns, capacity issues, inventory problems, and disruptions. Another classification is provided by Tang (2006) who categorized supply chain risks into operations and disruptions risks. The operations risks are associated with uncertainties inherent in a supply chain, which include demand, supply, and cost uncertainties while disruption risks are those caused by major natural and man-made disasters such as flood, earthquake, tsunami, and major economic crisis.

Numerous articles on supply chain risk management have been published in the last 20 years, the oldest being the article by Kraljic in 1983 (Paulsson, 2004). An attempt to review articles on supply chain risk management was done by Paulsson (2004). The author classified the articles using three dimensions: the unit of analysis, type of risk, and risk handling. From our observation, there are many more SCRM articles published since the appearance of Paulsson's review, making it beneficial to provide a more up to date review to include more recent articles. Tang (2006) reviewed SCRM articles, but he focused on quantitative models. The author classified articles according to four basic supply chain areas: supply management,

product management, information management, and demand management. The purpose of this paper is to provide an extensive literature review on supply chain risk management. In particular, we aim to:

- Classify SCRM articles according to their approach and methodologies
- Explore the trend in the SCRM research and suggest future research agenda.

## **REVIEW METHODOLOGY**

### **Search Methodology**

In this paper, we did exhaustive search of the articles related to supply chain risk management. We collected articles published from 2000 to 2007. Supply chain risk issue has undoubtedly received more attention after terrorists attack on the World Trade Center on September 11, 2001 (Norrman and Jansson, 2004; Paulsson, 2004), so the time frame is considered appropriate. The literature search was done through various electronic databases, including Science direct, Emerald Fulltext, EBSCO, ABI/INFORM Global Pro-quest, and Inderscience. The keyword used for the search was "supply chain risk". This search revealed nine articles in Science direct (abstract, title, and keywords), 30 articles in Emerald, 5 articles in EBSCO (abstract, title, and keywords), 10 articles in Inderscience, and 154 in ABI/inform Global Pro-quest academic database (full text documents and scholarly journals, including peer-reviewed) in August 2007. A total of 208 articles were found. After looking at the types of articles, we discarded those not belong to refereed journal articles such as prefaces, editorial notes, book review, and interview. Finally, we ended up with 82 relevant articles to be reviewed in this paper. Details of the 82 articles selected for analysis are shown in Appendix A. The table provides the authors'

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