

# An Investigation of the Development and Analysis of an Assessment Framework of Supply Chain Risks

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## ABSTRACT

Nowadays the corporate's business strategies tend to develop an intensive network relationship on designing and operating its supply chain. Although the network relationship has the advantages of resource sharing, resource complementarity, transaction costs reduction, and focusing on core competency, it may inevitably encounter the risks and uncertainty accompanied by the network. However, so far it still lacks a systematic investigation on the sources, categories, and impacts of uncertainty of a supply chain. The purpose of current study is to explore the risks of a supply chain, and define these risks and their categories. Besides, the method and the tool of risk analysis are proposed to measure the value at risk. Finally, an integrated assessment framework of supply chain risks is developed. The study referred to the related literature and the viewpoints of experts so as to objectively develop the framework of supply chain risks and their sources. A two-step survey was conducted to the leaders or decision-makers from logistics department in electronic industry, which can be used to collect the data concerning the sources and their importance of various risks. A fuzzy analytic hierarchical process (FAHP) is adopted to calculate the weights of given risks representing their seriousness. The study proposed a framework including the category of risks, the items of risks, and their weights. A risk matrix is displayed, where the value at risk were obtained by multiplying the possibility of risk and its seriousness score. The findings of this study can serve as a reference tool for the companies to assess their supply chain risks and help the managers make the decisions on logistics management.

Keywords : Supply Chain Risk; Risk Assessment; Fuzzy Analytic Hierarchical Process

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