An Analytical Framework for Supply Network Risk Propagation: A Bayesian Network Approach

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Abstract

There are numerous examples of supply chain disruptions that have occurred which have had devastating impacts not only on a single firm but also on various other firms in the supply network. We utilize a Bayesian Network (BN) approach and develop a model of risk propagation in a supply network. The model takes into account the inter-dependencies among different risks, as well as the idiosyncrasies of a supply chain network structure. Specific risk measures are derived from this model and a simulation study is utilized to illustrate how these measures can be used in a supply chain setting.

Keywords: (P) Risk analysis, (P) Risk Management, (D) Supply chain management, (I) Networks, (P) Uncertainty modelling

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