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基于风险偏好的零售商买入期权订购模型

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Order Models for Call Option of Retailers Based on Risk Appetite

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摘要 传统供应链研究以假设双方为风险中性为主，但实践中不同管理者对风险有不同需求.以嵌入式期权为基础，应用条件风险值(Conditional Value at Risk, CVaR)的方法反映风险偏好，构建随机需求下的单个零售商和单个供应商组成的两级供应链期权契约模型，分析推导出零售商的最优期权购买量，反映了零售商的风险偏好对买入期权的最优购买量和收益都有重要影响.风险规避程度越高，购买量和收益就越小.最后，通过算例进一步验证研究结果.

关键词： 供应链　期权　风险偏好　条件风险值(Conditional Value at Risk, CVaR)

Abstract： Option tools create a new model of supply chain collaboration which enables suppliers and retailers jointly to be liable for the risks of market uncertainty. Traditional supply chain researches assume that both parties are mainly risk neutral. However, different managers have different needs for risk in practice. Application of Conditional Value at Risk (CVaR) can weigh the scale of risk and reflect the risk appetite. The decision-making objective function is modified on the basis of the approach and a model of option contract in a two-level supply chain. The chain consisting of a single retailer and a single supplier is build under stochastic demands. Obtaining the optimal amount of the retailer's option by analyzing the models, the paper reveals that the risk attitude has a significant impact on the optimal amount of call options and revenue, that is, the higher degree of risk aversion, the smaller order volume and revenue. A numerical example is provided to verify the conclusions drawn in this paper.

Keywords： supply chain,　options,　risk appetite,　Conditional Value at Risk (CVaR)

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