

基于测度变换方法的随机型创新幂式期权定价

赵巍¹, 何建敏²

1. 淮海工学院商学院, 江苏连云港 222001;
2. 东南大学经济管理学院, 江苏南京 210096

Stochastic Innovation Power Options Pricing Based on the Measure Transformation Methods

ZHAO Wei¹, HE Jian-min²

1. School of Business, Huaihai Institute of Technology, Lianyungang 222001, China;
2. School of Economics and Management, Southeast University, Nanjing 210096, China

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摘要 随机型创新幂式期权以其结构简明、风险可控而受到投资者青睐。针对传统方法求解随机型期权存在的困难,提出用测度变换方法解决随机幂式期权的定价模型。受鞅定价方法的启发,推广计价单位的选取以获取相应的等价测度变换,得到随机利率情形下具有一般支付函数的测度变换公式;以此为基础选取远期债券为计价单位,并考虑债券价格波动和股价波动的相关性,可以方便地推导出随机型幂式期权定价模型。通过对模型风险特征的数值模拟分析,说明了幂式期权的优势所在。此项研究结论对金融衍生产品的发行者和投资者具有一定的理论借鉴意义。

关键词: 等价鞅 随机利率 测度变换 创新幂式期权

Abstract: Stochastic Innovation Power Options are popular to investors for their simple structure and controllable risk. Faced to the difficulty of stochastic options,a new method named measure transform is used to solve the pricing models of stochastic innovation power options. Inspired by the essence of martingale pricing,the equivalent measure is gotten by the extending numeraire,and the measure transformation equation with general payment functions is derived under the stochastic rate.Then by choosing long-term bond as the numeraire and considering the correlation between bond price and stock price,the pricing models of stochastic power options can be given conveniently. By the numerical simulation analysis on the risk characteristics of our model,the advantages of the power options can be showed The issuers and investors of financial derivaties can learn more from our conclusions.

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作者简介: 赵巍(1980-),男(汉族),江苏连云港人,淮海工学院商学院讲师,博士,研究方向:金融工程与金融复杂性。

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