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跳分形过程下延展期权定价

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Pricing extendible option under jump-fraction process

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- 摘要
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摘要 当标的资产遵循跳分形过程时, 构建了延展期权的评估框架. 首先, 在风险中性环境里, 对标的资产发生跳跃次数的收益求条件期望现值, 导出了延展一期的看涨期权解析定价公式, 并探讨了公式的一些特殊情形. 然后, 将定价公式延展到 M 期, 该延展期权价值在 M 趋于无穷极限状态时, 将收敛于永久延展期权. 提出了一种简单有效的两点外推法求极限. 最后, 提供数值结果, 阐述了定价表达式的简单实用.

关键词: 跳分形过程 延展期权 两点外推技术

Abstract: A valuation framework for extendible options is constructed when the underlying asset obeys a fractional process with jump. Under the risk neutral environment, an analytic formula for the call option with one extendible maturity is derived by solving the expected present value of cashflow and conditioning jumps for the underlying asset. Moreover, some special cases of the formula are discussed. These results are generalized to the option with M extendible maturity. Its value will converge in the limit to the value of perpetual extendible option as the number of extendible maturity increases to infinite. Extrapolated technique with two points is presented to yield a simple and efficient computation procedure to calculate the limit. Numerical results are provided to illustrate provided that our pricing expressions are easy to implement.


Key words: jump fraction process extendible option extrapolated technique with two points

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