跳躍-發散與隨機波動模型之衍生性商品最適避險策略-快速傅立葉轉換之應用

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近年來金融海嘯造成全球股市重挫及經濟停滯或衰退，其成因與使用高槓桿之衍生性金融商品息息相關。因此，本研究利用快速傅立葉轉換為評價媒介，建構最小避險風險法與最適 CVaR 避險等選擇權避險策略以進行衍生性商品之避險績效評估。本文實證結果顯示以數值分析為基礎的 Monte-Carlo 模型以及納入考量金融市場隨機波動現象之隨機波動模型等兩種避險模型為相對較優之衍生性商品避險模型，且最適 CVaR 避險策略之避險績效大抵而言顯著相對優於最小避險風險策略之避險績效。

關鍵字：跳躍-發散、隨機波動、快速傅立葉轉換、最小避險風險法、條件風險值避險。

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Optimal Option Hedging Strategy with Fast Fourier Transform in Jump Diffusion and Stochastic Volatility Models

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The financial tsunami in recent years resulted in global drawdown on stock markets and economic recession, which is involved with the usage of high leverage derivative products. Therefore, it needs to construct an effective derivative hedging strategies to hedge the risk exposed. To assess the hedging effectiveness of derivatives products, this study applies the method of fast Fourier transform to construct options hedging strategies under two methods of minimizing hedge risk and optimal conditional VaR. The empirical results of options hedging on derivative products indicate that the Monte-Carlo simulation and the stochastic volatility model are relatively superior derivatives hedging models, and that the hedging effectiveness of conditional VaR hedge generally outperformed that of minimizing hedge risk.

Keywords: Jump-Diffusion, Stochastic Volatility, Fast Fourier Transform, Delta-Gamma Neutral, Conditional VaR Hedge.