摘要

本研究分析且改良結合單因子市場模型與 SPAN 邏輯之組合式保證金系統 Beta-Simulation，並以 TAIFEX 中全體投資人實際未平倉部位投資組合爲樣本做實證分析，檢驗此新系統相對於 SPAN 系統的優勢與用於實際交易市場的可行性。實證結果發現，以整戶交易部位風險暴露來做爲保證金計算依據的 Beta-Simulation 系統，確實改進了 SPAN 與 TIMS 面臨跨商品交易之風險折抵問題並有效降低資金成本，不但保證金需求平均只有 TAIFEX 之 SPAN 保證金的 74%，也可給予與 SPAN 同樣的保護。此外，本研究不但依實際市場客戶投資組合分配資料進行回溯測試，也以金融海嘯期間市場資料對 Beta-Simulation 系統進行壓力測試。結果，在市場價格劇烈變動時，Beta-Simulation 系統仍可以確實地捕捉投資人在實際市場波動下所面臨之風險而提供有效的風險衡量與保護。

關鍵詞：保證金系統、單因子市場模型、SPAN、TIMES、TAIFEX

Abstract

This paper analyzes the strength and weakness of new portfolio-based margining system-Beta-Simulation which combines single factor market model with SPAN-like logic to calculate margin requirements. The new model is empirically tested using all actual open positions by Taiwan Futures Exchange's clearing members. Evidences show that the new model is not only easier than SPAN in computational procedure but also offer sounder theoretical basis than SPAN or TIMS for credit offset estimates among individual stock options or Futures. Back tests show that the new model only needs 74% of TAIFEX SPAN margin requirements but it can offer the same protection in the same confidence interval. The new model also passes the Stress test simulated by testing against the period when the world financial tsunami swayed the world.

Keywords: margining system, market model, SPAN, TIMS, TAIFEX