

# 考量交易對手違約風險、基差風險及道德 風險下巨災連結商品之定價

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## 摘要

氣候變遷導致異常損失而使得(再)保險公司難以承擔。巨災連結商品(包括或有資本及避險工具)提供了另一個移轉巨災風險的管道。本文提供考量交易對手違約風險、基差風險及道德風險之下，巨災連結商品一般化的報酬形式。再者，假設巨災損失服從 Levy 過程，以提供巨災連結商品之封閉解。在數值分析方面，本文將探討交易對手違約風險、基差風險及道德風險對巨災連結商品價格的影響，探討何種風險對巨災連結商品價格影響較大。由數值分析結果得知，以參數而言對巨災連結商品價格影響最大的為巨災事件發生頻率，而以三個風險分析時，影響巨災連結商品最重要的風險為交易對手違約風險與基差風險。

**關鍵字：**巨災連結衍生性金融商品，Levy 過程，交易對手違約風險，基差風險，道德風險

# The Valuation of Catastrophe-Linked Products with the Counterparty Default Risk, Basis Risk, and Moral Hazard Risk

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## Abstract

Climate change has resulted in enormous losses which are failed to bear by the (re)insurance companies. Catastrophe-linked products, including contingent capital and hedging instruments can offer alternative possibilities to transform the catastrophic risks. This article provides the generalized payoffs of catastrophe-linked products with consideration of counterparty default risk, basis risk and moral hazard risk, and then derives the closed-form solution of catastrophe-linked products assuming the catastrophic loss follows the Levy process. In numerical analysis, we investigate the impacts of the counterparty default risk, basis risk and moral hazard risk on the catastrophe derivatives prices. Based on numerical analysis, we can find that intensity of catastrophe has the greatest influence on the value of catastrophe-linked products. Furthermore, we can also know counterparty default risk and basis risk have the higher impact on the value of catastrophe-linked products.

**Keywords:** Catastrophe-linked products, Levy process, Counterparty default risk, Basis risk, Moral hazard risk

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