

Abstract for IME 2015

Title of the Paper: Risk Diversification Effect in the Portfolio of Index Based Weather Insurances

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Abstract of the Paper

Weather risk is a risk due to unfavorable outcome of weather represented by variables such as temperature and precipitation. In many countries weather risks have been well recognized and financial instruments including index based weather insurances are being utilized for the purpose of risk management. However, weather risk is systemic in nature and insurance companies selling weather insurance policies have difficulty in risk diversification. Thus, development of reinsurance program is crucial for the expansion of weather insurances.

The topic of this paper is evaluation of risk diversification effect in the portfolio of temperature index based weather insurances. A multivariate model to represent variation and dependency of daily temperatures in several geographical areas is suggested. And aggregate risk of the portfolio which consists of policies of three different types of index based weather insurances being sold in several geographical areas is evaluated based on suggested model. Temperature data for different regions of Korea and China are used for the analysis. Results of the analysis show significant risk reduction in the portfolio of weather insurances which is necessary for sustainable reinsurance program.

Keywords: Index Based Weather Insurance, Multivariate Temperature Model,
Risk Diversification