16. Sovereign risk pools: Visualising the benefits from diversification

Proposers: Daniel Clarke and Neil Laws

Brief Description: Countries could prepare for possible natural disasters by accumulating reserves and purchasing insurance. Instead, they could contract with other countries to hold joint reserves and jointly purchase insurance (with a joint deductible). The latter may be more cost effective if pooling is possible at a lower cost than commercial insurance.

The student would present different ways of thinking about and presenting the possible benefits from diversification. Theoretical notions such as stochastic dominance and copulas would be complemented with presentation of simpler calculations such as that of the variance, return period and variance at risk to decompose the benefits from diversification between perils and countries.

References:

Nelsen, R.B., *An introduction to copulas*, Springer Verlag, 2006.

Prerequisite courses: Part A *Probability*. The new course *Actuarial Decisions under Uncertainty* (BS4b), to be run for the first time in HT 2012 will be useful for the student.

Type of project: data analysis/simulation/theoretical? Theoretical + Data analysis.

Computing required? level of programming skill: low/high? Moderate

Data available? (if relevant) Anonymised data for four perils will be supplied