



Heavy tailed risks and diversification effects

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Extreme weather related events are characterized by complex dynamics and effects that systematically intersect across different insurance lines. A prerequisite for developing and testing risk-sharing and risk-mitigation arrangements is therefore to get the geophysical facts right. By definition, data on catastrophic losses are very limited, meaning that sophisticated estimation techniques are undermined by small sample sizes. We build on Bayesian decision theory and statistical process control to show how relevant information can be extracted from the available data and experts' opinion. We work with heavy-tailed distributions, and allow for the following particular aspects of catastrophic climatic events: regime changes, learning, spatial effects.

We also analyze the effects of aggregating heterogeneous and correlated risk exposures: to what extent it is possible to enjoy diversification gains, and devise efficient risk transfer mechanisms in the presence of “diversification traps”.