Topic: Risk reduction by conditional mean risk sharing

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Abstract: This talk considers the conditional mean risk allocation for independent but heterogeneous losses that are gathered in an insurance pool, as defined by Denuit and Dhaene (2012, Insurance: Mathematics and Economics). The behavior of individual contributions to total losses is studied when the number of participants to the pool increases. It is shown that increasing the number of participants is always beneficial and that there always exists a critical number of participants such that collaborative insurance outperforms commercial one. The linear fair risk allocation approximating the conditional mean risk sharing rule is identified, providing practitioners with a useful simplification applicable within large pools. The approximate number of participants required to keep the volatility of individual contributions within an acceptable range can also be obtained from the established asymptotic Normality. This talk is based on several papers co-authored with Christian Robert from the Laboratory in Finance and Insurance (LFA), CREST, ENSAE, Paris.