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### Reserve Allocation in Insurance

Reserving in insurance involves first finding a total reserve based on the aggregate loss distribution which is then allocated back to individual losses. The allocation is done for the purposes of analysing the financial position and performance of individual business units and making targeted management decisions based on the analyses. Two approaches to reserve allocation are proposed in this seminar.

The first approach is sometimes known as the RMK framework based on work by Ruhm, Mango and Kreps. It is a complete reserving framework. The total reserve is firstly set as the expected aggregate loss under a modification of the joint loss distribution. Allocation is then done based on the principle of fairness. Under some circumstances this approach corresponds to the principle of Euler allocation.

The second approach is yet to be seen in literature and is called “copula maximization”. It seeks to maximise the adequacies of allocated reserves in *all* business units given a total reserve. This is done by combining the adequacies into a single measure using a copula, hence the name “copula maximisation”. This approach is similar to utility maximization in resource allocation in microeconomic theory. Similar to the first approach, fairness is the guiding principle. However the total reserve can be arbitrarily set.