Research project proposal – Project title
"INTEGRAL-BASED PREMIUM PRINCIPLES"

Background

In the field of the actuarial mathematics the most important task is characterization of premium principles. In the mathematical context, an insurance risk is a non-negative random variable defined on the probability space. The comonotonicity of random variables in the context of the risk theory and the characterizations of the Choquet pricing and distortion premium principles have been investigated by various authors.

Project description

The aim of this project is to investigate the integral-based premium principles. The extensions of some well-known integrals based on capacities, such as the Choquet integral, Sugeno integral and Shilkret integral, will be defined. Under the concept of comonotonicity, the premium principles related to the capacity-based integrals will be introduced and the main goal of the project is to explore characterization for these new premium principles. The theoretical approach to the concept of integral-based premium principles will be investigated and new properties of introduced premium principles are expected. Applications of the proposed results in the actuarial science and finance will be obtained.

References

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