

State extension to make a dynamic risk measure temporally consistent

Scientific training period proposal

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1 Organism, supervision and material conditions

Organism

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Supervision and material conditions

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Number of students: 1

Material conditions: a financial gratification is offered

Dates: to be discussed

2 Proposal

Research domain

Mathematics, stochastic optimization.

Subject

When a dynamic risk measure — or a multi-stage stochastic optimization problem — is not temporally consistent, it is sometimes possible to transform it to turn it consistent. This can be done by extending the information (σ -algebra, state) available at each stage [1]. The student will propose a framework allowing such an extension.

Expected work

The proposals on stochastic dynamic programming and temporal consistency are rather theoretical.

References

- [1] P. Carpentier, J.-P. Chancelier, G. Cohen, M. De Lara, and P. Girardeau. Dynamic consistency for stochastic optimal control problems. *Annals of Operation Research*, 200(1):247–263, 2012.