ID de Contribution: **20** Type: **Non spécifié**

Universal Arbitrage Aggregator in Discrete Time under Uncertainty,

mardi 1 septembre 2015 09:00 (40 minutes)

In a model independent discrete time financial market, we discuss the richness of the family of martingale measures in relation to different notions of Arbitrage, generated by a class S of significant sets, which we call Arbitrage de la classe S. The choice of S reflects into the intrinsic properties of the class of polar sets of martingale measures. In particular: for S = {Ω}, absence of Model Independent Arbitrage is equivalent to the existence of a martingale measure; for S being the open sets, absence of Open Arbitrage is equivalent to the existence of full support martingale measures. These results are obtained by adopting a technical filtration enlargement and by constructing a universal aggregator of all arbitrage opportunities. We further introduce the notion of market feasibility and provide its characterization via arbitrage conditions. We conclude providing a dual representation of Open Arbitrage in terms of weakly open sets of probability measures, which highlights the robust nature of this concept.

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