

Bounded arbitrage for multi-period model of financial market with discrete time

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Abstract

In a general discrete time market model with portfolio constraints, an ε -arbitrage opportunity is an opportunity to make a riskless profit of amount at least ε while trading a limited amount of assets. In a one-period framework with contingent initial data and in a multi-period framework we prove no- ε -arbitrage criteria similar to the classical fundamental theorem of asset pricing. Classical result is that no-arbitrage is equivalent to the existence of an equivalent martingale measure, i.e. discounted price process is a martingale w.r.t. this measure. We prove that there is no ε -arbitrage iff there exists such an equivalent measure with a bounded density that the discounted price process is in certain sense close to a martingale w.r.t. this measure.

References

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