

Duality and Convergence for Binomial Markets with Friction

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We prove limit theorems for the super-replication cost of European options in a Binomial model with friction. The examples covered are markets with proportional transaction costs and the illiquid markets. The dual representation for the super-replication cost in these models are obtained and used to prove the limit theorems. In particular, the existence of the liquidity premium for the continuous time limit of the model proposed in [6] is proved. Hence, this paper extends the previous convergence result of [13] to the general non-Markovian case. Moreover, the special case of small transaction costs yields, in the continuous limit, the \mathbb{G} -expectation of Peng as earlier proved by Kusuoka in [14].

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