Liquidity Risk and Arbitrage Pricing Theory

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Abstract

We shall study the paper by Cetin, Jarrow, Protter, [1]. This paper extends classical arbitrage pricing theory to include liquidity risk by studying an economy where the security's price depends on the trade size. Extended first and second fundamental theorems of asset pricing are investigated. In an approximately complete market, derivative prices are shown to be the classical arbitrage free price of the derivative plus an adjustment for the initial liquidity cost of forming the replicating portfolio. The approach to liquidity risk has, as a special case, arbitrage pricing theory given transaction costs.

References

[1] Çetin, U., R. Jarrow, P. Protter. 2003, "Liquidity Risk and Arbitrage pricing theory ".

[2] Delbaen, F. and Schachermayer, W., 1994, "A General Version of the Fundamental Theorem of Asset Pricing", *Mathematische Annalen*, 300 , 463 - 520.

[3] Harrison, J.M and S. Pliska, 1981, "Martingales and Stochastic Integrals in the Theory of Continuous Trading," *Stochastic Processes and Their Applications*, 11, 215 - 260.