

# EUROPEAN CALL OPTION AND FRACTIONAL FRICTIONLESS/FRICTION MARKET

EHSAN AZMOODEH

## ABSTRACT

We first show that in the fractional Black-Scholes model all European options with convex payoff can be hedged perfectly and corresponding hedging strategy is as if the stock price had bounded variation. Moreover in the case of European call option, the hedging strategy *stop-loss-start-gain* is self-financing and hedging price is the same as one obtained in [2] and [3].

In the second part with proportional transaction costs to the model we study the asymptotic hedging problem in the case of European call option.

## REFERENCES

- [1] Azmoodeh, E., Mishura, Y., and Valkeila, E. (2009). *On hedging European options in geometric fractional Brownian motion market model*. Submitted.
- [2] Bender, C., Sottinen, T., and Valkeila, E. (2008). *Pricing by hedging beyond semimartingales*. Finance and Stochastics, **12**, 441-468.
- [3] Valkeila, E. (2008). *On the approximation of geometric fractional Brownian motion*. HUT, Institute of Mathematics, Preprint A535, 2007..

DEPARTMENT OF MATHEMATICS AND SYSTEMS ANALYSIS, TKK, FINLAND  
*E-mail address:* azmoodeh@cc.hut.fi