DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Volatility and Arbitrage

by

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Abstract

The capitalization-weighted cumulative variation $\sum_{i=1}^d \int_0^\cdot\mu_i (t)\dx\langle\log\mu_i\rangle(t)$ in an equity market consisting of a fixed number d of assets with capitalization weights $\mu_i (\cdot)$, is an observable and a nondecreasing function of time. If this observable of the market is not just nondecreasing but actually grows at a rate bounded away from zero, then strong arbitrage can be constructed relative to the market over sufficiently long time horizons. It has been an open issue for more than ten years, whether such strong outperformance of the market is possible also over arbitrary time horizons under the stated condition. We show that this is not possible in general, thus settling this long-open question. We also show that, under appropriate additional conditions, outperformance over any time horizon indeed becomes possible, and exhibits investment strategies that affect it. Joint work with Bob Fernholz and Ioannis Karatzas.

Date : 3 September, 2018 (Monday)
Time : 3:00p.m. – 4:00p.m.
Venue : TU801, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***