

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Online Control Seminar Series

Pairs Trading under Geometric Brownian Motions

**By
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Abstract

This talk is about an optimal strategy for simultaneously trading a pair of stocks. The idea of pairs-trading is to monitor their price movements and compare their relative strength over time. A pairs trade is triggered by their price divergence and consists of a pair of positions to short the strong stock and to long the weak one. Such strategy bets on the reversal of their price strengths. From the viewpoint of technical tractability, typical pairs trading models assume a difference in the stock prices follows a mean reversion equation. In this talk, we consider the optimal pairs-trading problem by allowing the stock prices to follow general geometric Brownian motions. The objective is to trade the pairs over time to maximize an overall return with a fixed commission cost for each transaction. The optimal policy is characterized by threshold curves obtained by solving the associated HJB equations. Numerical examples are included to demonstrate the dependence of our trading rules on various parameters and to illustrate how to implement the results in practice.

Date : 30 March 2021 (Tuesday)

Time : 09:00-10:00 (Hong Kong Standard Time GMT +8)

Venue : Online Talk via Zoom (Meeting ID: 925 0071 1202)

Speaker : Prof. Qing Zhang, University of Georgia

Host : Prof. Xun Li, The Hong Kong Polytechnic University

Click to join:

<https://polyu.zoom.us/j/92500711202?pwd=ajVMU21PemJTSGJPRmRSUFA3TisyQT09>



[Click to join \(Zoom\)](#)

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

For enrolment, please send your name and email to shuk-wai.ko@polyu.edu.hk on or before 29 March 2021