THE HONG KONG POLYTECHNIC UNIVERSITY
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DEPARTMENT OF APPLIED MATHEMATICS
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Research interests include:

- Stochastic Controls
- Mean- Field Forward- Backward Systems
- Time- Inconsistency Control Problems with Financial Applications

On-going GRF project

Selling Financial Assets at the Best Time

Abstract:

A primary decision-making problem in financial investment practice is to determine the best time to sell an asset. This project aims to solve such a problem for a class of general continuous-time asset price processes where the objective is to sell at a price closest to the highest possible price over a given investment horizon. The problem is formulated as an optimal stopping problem, although it is non-standard in the sense that the maximum price involved is not adapted to the information generated over time. By delicate stochastic analysis the problem is expected to be converted to a standard optimal stopping one involving adapted processes. This project also studies a continuous-time market where an agent, having specified an investment horizon and a targeted terminal mean return, seeks to minimize the variance of the return. The optimal portfolio of such a problem is called mean-variance efficient a la Markowitz. It is shown that, under very mild conditions, a mean-variance efficient portfolio realizes the (discounted) targeted return on or before the terminal date with a probability greater than 0.8072. This number is universal irrespective of the market parameters, the targeted return, and the length of the investment horizon.

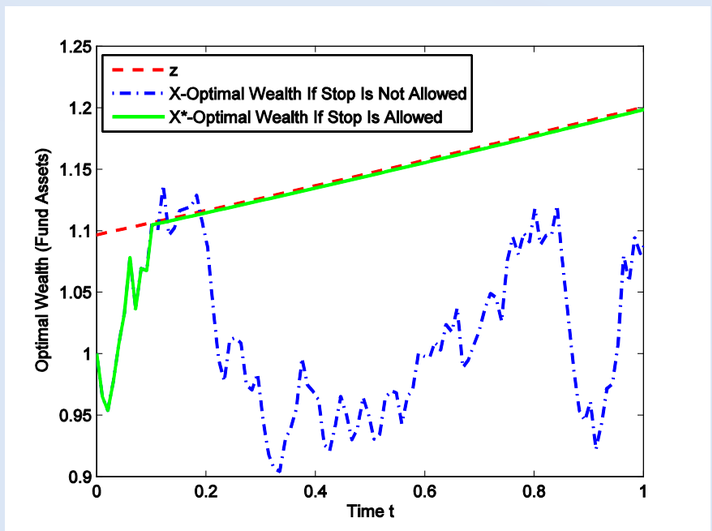

Figure 1

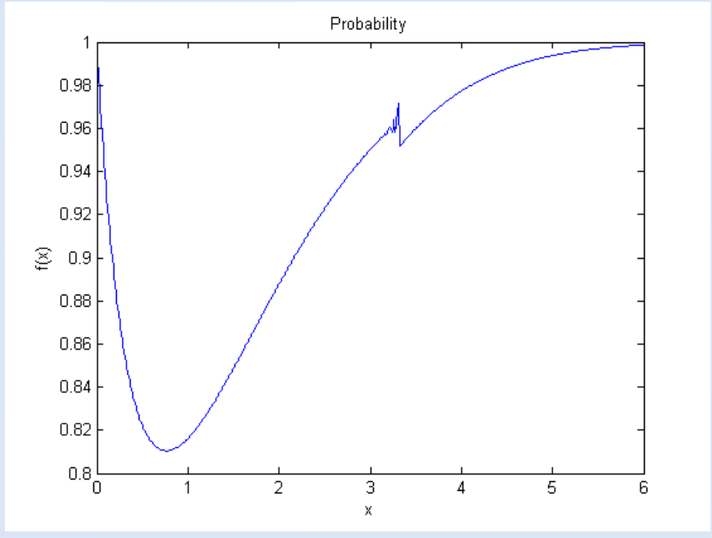

Figure 2