Efficient Greek Calculation of Variable Annuity Portfolios for Dynamic Hedging: A Two-Level Metamodeling Approach

Abstract

The financial risk associated with the guarantees embedded in variable annuities cannot be addressed adequately by traditional actuarial techniques. Dynamical hedging is a popular approach to mitigate the financial risk arising from variable annuities. However, a major challenge of dynamical hedging is to calculate the dollar Deltas of a portfolio of variable annuities within a short time interval so that rebalancing can be done timely. In this talk, I will present a two-level metamodeling approach to efficiently estimating the partial dollar Deltas of a portfolio of variable annuities under a multi-asset framework. The first level metamodel is used to estimate the dollar Deltas at some well-chosen market levels and the second level metamodel is used to estimate the dollar Deltas at the current market level based on the pre-calculated dollar Deltas. This work was done jointly with Sheldon Lin of the University of Toronto.

on

Thursday, March 19, 2015

(Refreshments will be served from 4:15 p.m. outside Room 301 Run Run Shaw Building)

4:30 p.m. – 5:30 p.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome