Economics Seminar, Indian Statistical Institute, New Delhi.

SPEAKER: Rahul Vasudev

TITLE: Testing for Martingales in Continuous Time

TIME: 11:30 - 1:00 P.M.

DAY & DATE: Friday, September 4th ,2009

PLACE: Seminar Room 2, New Building

 Abstract:

The paper develops tests for martingales which are consistent against a wide class of nonmartingale semimartingales, in a continuous time framework. Our tests are based on a time change defined by the estimated quadratic variation of the underlying stochastic process. We show, in particular, that the samples observed at time intervals with the same estimated quadratic variation are distributed as normal with mean zero, if and only if the null of the martingale hypothesis is true. As a result, we may test for the normality of the samples using the Kolmogorov-Smirnov and Cramer-von Mises type statistics, as a way to test for the martingale hypothesis. These are the tests that we propose in the paper. The limit distributions of these tests are well known and do not depend on any nuisance parameters. Our tests are therefore very simple to implement for practical applications. Moreover, as we show in our simulations, the size and power performance of our tests appears to be rather satisfactory. All the results in the paper are derived under very mild regularity conditions. As illustrative examples, our tests are employed to examine the martingale hypothesis for a variety of futures prices, including index futures for stock prices and exchange rate futures on several major currencies.

http://www.isid.ac.in/~pu/seminar.html