

School of Mathematical and Statistical Sciences

Colloquium Series

Barndorff-Nielsen and Shephard model with various applications in finance

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Abstract

In this presentation, a class of generalized Barndorff-Nielsen and Shephard model will be investigated from the viewpoint of derivative asset analysis. Incompleteness of this type of markets will be studied in terms of equivalent martingale measures (EMM). Various structure preserving subclasses of EMMs will be derived. It will be shown that such models can be effectively used for arbitrage-free pricing of volatility, variance, and covariance swaps. One of the major challenges in the arbitrage-free pricing of swap is to obtain an accurate pricing expression which can be used with good computational accuracy. In this presentation, various approximate expressions will be obtained for the pricing of volatility, variance, and covariance swaps. It will be shown that with the approximate formulas obtained from the Barndorff-Nielsen and Shephard model the error estimation in fitting the delivery price is much less than the existing models with comparable parameters.

Dr. Indranil SenGupta received M.S. in Mathematics in 2006 from UTPA, and Ph. D. in 2010 from Texas A & M University. His research interests include Mathematical Finance, Stochastic Processes, Mathematical Physics and Information Theory.

Date: **Friday, September 21, 2018**

Time: 4:00pm–5:00pm

Place: EMAGC 1.410

The talk will be delivered live at the Edinburg campus and will be streamed to the Brownsville campus at BLHSB 1.312 ITV. Refreshments will be served at 3:50pm.

For further information or for special accommodations, please contact Dr. Baofeng Feng at baofeng.feng@utrgv.edu or Dr. Elena Poletaeva at elena.poletaeva@utrgv.edu