

**Department of Mathematical Sciences
Colloquium**

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MODELING HIGH FREQUENCY (TICK) FINANCIAL DATA

In recent years there has been a growing literature in financial economics that analyzes the major stock indices in developed countries. Two of the main problems are the analysis of the existence of long-term or short-term correlation in the behavior of financial market and the determination of asymptotic probability density distribution that can be used to study the associate stochastic process. Studies that focus on a particular country index generally show that a long-term memory effect exist in those indices. The previous studies concentrated on daily data. We wish to verify if the same conclusion applies to high frequency (tick) data. We used Rescaled Range Analysis (R/S) and Detrended Fluctuation Analysis (DFA) methods to determine long-range correlation. We found evidence that even in an ordinary day without any notable information, the used of short-term memory models is inappropriate. We verify that the behavior of the return is compatible with that of continuous time Levy processes. Finally we derive the Black-Scholes equation for option pricing and give some extensions.

Friday, November 20, 2009 at 3 pm in Bell Hall 143

The University of Texas at El Paso

Refreshments will be served in front of the colloquium room,
15 minutes before the start of the colloquium.