



The University of Chicago
Department of Statistics

STATISTICS COLLOQUIUM SERIES

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Detecting Financial Bubbles in Real Time

MONDAY, October 31, 2011, at 4:00 PM

**Room 112 of The Stevanovich Center for Financial Mathematics, 5727 S.
University Avenue.**

Refreshments following the seminar in the library of the Stevanovich Center.

ABSTRACT

After the 2007 credit crisis, financial bubbles have once again emerged as a topic of current concern. An open problem is to determine in real time whether or not a given asset's price process exhibits a bubble. To do this, one needs to use a mathematical theory of bubbles, which we have recently developed and will briefly explain. The theory uses the arbitrage-free martingale pricing technology. This allows us to answer this question based on the asset's price volatility. We limit ourselves to the special case of a risky asset's price being modeled by a Brownian driven stochastic differential equation. Such models are ubiquitous both in theory and in practice. Our methods use sophisticated volatility estimation techniques combined with the method of reproducing kernel Hilbert spaces. We illustrate these techniques using several stocks from the alleged internet dot-com episode of 1998–2001, where price bubbles were widely thought to have existed. Our results support these beliefs. We then consider the special case of the recent IPO of LinkedIn. The talk is based on several joint works with Robert Jarrow, Kazuhiro Shimbo, and Younes Kchia.

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