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“Using Option Prices to Detect Bubbles in Financial Markets”

Joint work with Paul Glasserman

Abstract:

In the context of financial markets, bubbles refer to asset prices that exceed the asset's fundamental, intrinsic value. Bubbles are often associated with a large increase in the asset price followed by a collapse when the bubble “bursts”. History abounds with examples of bubbles that have had disastrous effects on the economies of their days – from the Dutch tulip mania of 1619 to the tech bubble of 2000. A series of recent papers has developed a number of mathematical models for bubbles in financial markets, together with a number of analytical tests that could, in theory, be used to detect bubbles before they burst. These tests, however, only use information available in the stock prices themselves. In our project, we investigated a variation of these detection methods that rely on prices of options on the stock, rather than on the price of the stock itself.