A mechanism leading from bubbles to crashes

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In this study we investigate quantitatively statistical properties of ensembles of asset prices: stock prices and land prices. We selected 1200 stocks traded in the Tokyo Stock Exchange and formed a statistical ensemble of daily stock prices for each trading day in the 3 year period from January 4, 1999 to December 30, 2002 corresponding to a period of Internet bubbles. We found that the tail of the complementary cumulative distribution function of the ensembles of stock prices is well described by a power-law distribution, and furthermore that as the power-law exponents approached unity, bubbles collapsed.