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ECONOMIC SCENE

## Economists Try to Explain Why Bubbles Happen

By ALAN B. KRUEGER

JONATHAN Swift is credited with affixing the label "bubble" to a stock price that far exceeded its economic value in a poem written in December 1720, just after the stock price of the South Sea Company tumbled. The last stanza read: "The Nation too, too late will find/ Computing all their Cost and Trouble/ Directors Promises but Wind/ South Sea at best a mighty Bubble."

Perhaps it is a tad late, but economists are rediscovering bubbles.

Before the prices of Internet stocks crashed in April 2000, most financial economists believed that stock prices closely matched their fundamental economic value. Indeed, a survey of 110 financial economists by Ivo Welch of Yale in 1997 found that fewer than one in 10 disagreed with the statement, "By and large, public securities market prices are efficient."

In an efficient market, all relevant public information is reflected in the price of an asset. Prices cannot be too high or too low; they must be just right.

Bubbles were considered a theoretical impossibility. If a stock's price exceeded its fundamental value, rational investors would sell the shares they own as well as sell the stock short - betting that the price will fall - therefore putting pressure on the price to fall. As long as knowledgeable, rational investors had enough funds to "attack" a bubble by short selling, even the presence of irrational investors would not permit prices to stray from their fundamental values for long.

Experience can be a powerful teacher. The rise and fall of Internet stocks - which created and then destroyed \$8 trillion of shareholder wealth - has led a new generation of economists to acknowledge that bubbles can occur.

What is wrong with the logic that bubbles should be attacked by knowledgeable investors?

Economists now have an abundance of theories to explain why arbitrage behavior, the practice of exploiting the mispricing of assets to make a profit, does not inoculate us from bubbles.

One theory posits that smart investors, like mutual funds and hedge funds, are reluctant to bet against overpriced stocks because they would lose clients if they did not go along with others and the price continued (for a time) to rise.

Another says that investors who recognize that a stock is overvalued still pour money into it because they cannot tell when others will sell the stock short, and they would forgo profitable opportunities if they pulled out too soon. If everyone is looking for the exits right away, then the strategy is clear - but no one wants to be the first to leave a good party, even if everyone knows the party is overrated. According to this theory,

investors face a "synchronization risk" because many investors must attack a bubble at once for it to burst.

Yet others peg the problem on regulation.

Two intriguing recent papers look closely at knowledgeable investors' behavior to sort out these explanations, and both point to synchronization problems.

Peter Temin of the Massachusetts Institute of Technology and Hans-Joachim Voth of the Universitat Pompeu Fabra in Barcelona, Spain, revisit the South Sea bubble of 1720, examining the daily trading positions taken by Hoare's Bank, a niche private bank in London. The advantage of looking at this historic event, Mr. Temin said, is that "we can look at the actual records at a time when we don't have complications of modern life, such as regulation."

The South Sea bubble involved a British company with monopoly trading rights over South America. Despite dazzling investors with the promise of riches from Spanish America, the South Sea Company ran a type of Ponzi scheme, exchanging shares in the company for privately held government debt. The price of South Sea's stock increased more than eightfold from January to July of 1720, and then fell by 88 percent in the fall of 1720.

Jonathan Swift, Isaac Newton and other lay investors lost substantial sums in the South Sea bubble, but what about sophisticated investors? Hoare's Bank, which is still in business, opened its archives to the professors. They discovered that Hoare's was a cautious, sophisticated investor that undoubtedly recognized that South Sea's price was unsustainable. Yet the bank decided to "ride" the bubble, investing its own funds after it thought the stock was overpriced. In the end, the bank made a tidy profit because it invested early and sold some of its stock as the price fell.

The most plausible explanation for this behavior, the economists concluded, is that the bank did not know when other sophisticated investors would stop buying the stock, so the lack of coordination allowed the bubble to grow.

Looking at the Internet bubble 280 years later, Markus K. Brunnermeier of Princeton and Stefan Nagel of Stanford provide the first detailed study of the trading positions of hedge funds. Extracting quarterly information from Form 13F filings, which are required of large institutional investors, they are able to peek at the stock holdings of 53 hedge fund managers, encompassing hundreds of major funds, including Soros, Tiger and Tudor.

Like Hoare's Bank, hedge funds continued to invest in highly priced Internet stocks deep into the bubble. At the peak of the market, in March 2000, hedge funds held 31 percent of their stock portfolios in companies with the highest price-to-sales ratios, while such companies attracted 21 percent of the market over all. Hedge funds reduced their holdings of Internet stocks when the price fell, but their portfolios were still weighted more heavily toward highly priced stocks than other investors'.

Although hedge funds pursued diverse strategies, Professors Brunnermeier and Nagel found "no evidence that hedge funds as a whole exerted a correcting force on prices during the technology bubble." Riding the bubble and timing sales of individual stocks also paid off: hedge funds' investments in the technology sector outperformed market benchmarks.

Hoare's Bank and the hedge funds may have been lucky - indeed, there is no evidence that the hedge funds outperformed the market outside the technology sector - but their strategies still indicate that at least some highly skilled investors were riding bubbles instead of attacking them.

Bubbles create many problems. Investors gain a false sense of wealth and security, and capital can be

misallocated.

What should we do about them? Professor Brunnermeier has a modest proposal: more disclosure. For example, he points out that it is inadequate for Form 13F to require investors to disclose stocks that they own but not ones that they have shorted. Greater disclosure could help to synchronize attacks on bubbles, and thus prevent them from inflating in the first place.

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