

Bubbles in Asset Prices

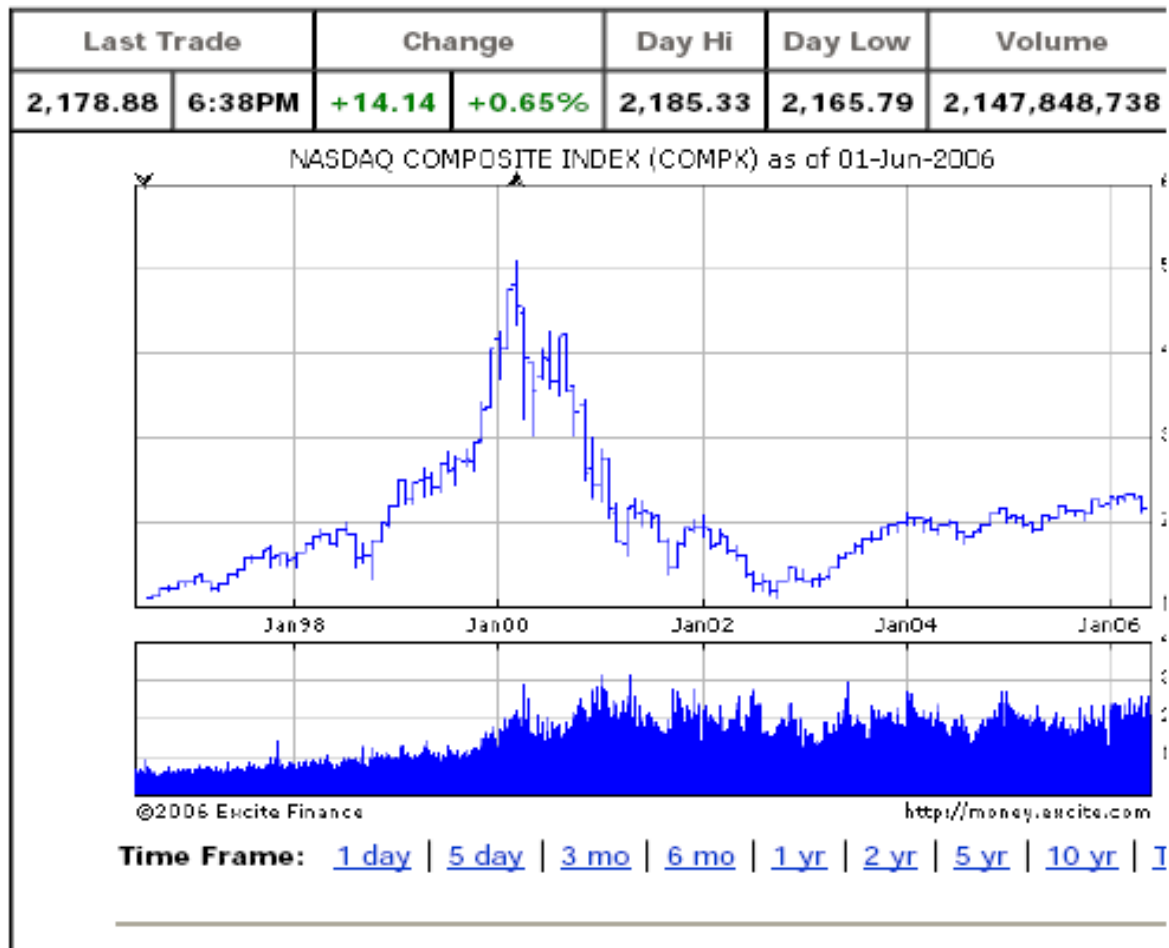


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Bubbles in Asset Prices

- Very brief introduction
- Much of class time spent on dissertation proposals

NASDAQ Composite Price Index



Observations

- Big price rise and big fall
- Some of underlying stocks fell by 95 percent
- Not only small companies
 - Value weighted index
 - Even a large company such as Microsoft fell by about half
 - As did Dell
- Less dramatically, see a similar pattern in overall market indexes
 - Price of overall U.S. market not back to level in middle of 2000 as of May 31, 2006

Caveats About Index

- This is a price index
 - Reflects price only
 - Not reinvested dividends
- Reinvested dividends generally not important for NASDAQ
 - But Microsoft trades on NASDAQ and has had significant dividends in recent years
 - Means that recover is more than implied by price alone
- Still, there is a big increase and a later decrease

Bubble?

- To be interesting, a bubble must be more than a rise and then a fall
 - Maybe predictable fall?
 - Easy to find quotes that technology stocks were overvalued in late 1990s
- Price higher than justified by the fundamentals
 - This is a common definition
 - Begg question: “What are the fundamentals?”
 - Does everyone have to agree?

Bubbles and Optimizing Behavior

- Optimizing is a neutral word
 - Term “rational” is loaded
 - Definition – having reason or understanding
 - Antonym is “irrational”
 - Definition – lacking usual or normal mental clarity or coherence
- It’s easy to rationalize behavior with irrational (incoherent) behavior
 - Task is to find a coherent explanation, which lends predictability to the behavior
 - Hard to have a coherent explanation based on incoherent behavior

What Might Bubbles Arise?

- Inconsistent beliefs
 - Greater fool theory
 - Everyone believes that they can find someone more foolish than themselves who will pay even more for the asset
 - No doubt other similar theories
- Consistent beliefs but limited participation
 - No short sales
 - Price **may** reflect only the beliefs of those who have the more optimistic beliefs

Short Sale Constraints

- Short sale constraint theory
 - Agents holding stock have more optimistic beliefs than those not holding stock
 - Agents on average, including those who would short stock if they could, have correct beliefs
 - Agents in market do not infer beliefs of those not in the market

Short Sale Constraint

Theoretical Issue

- If short sale constraints always lead to overvaluation, agents in the market are ignoring information available to them
 - Information that some are not holding stock because they think that price is too high
 - Just need to read newspaper to know this
 - Similar to “winner’s curse” in auction theory
- Short sale constraints need not lead to overvaluation in general
 - Could argue that overvaluation does not occur on average
 - Sometimes price too high, sometimes too low
 - Ex post, can tell when it was too high

Older Theory

Rational Bubbles

- Theory is very simple
- Suppose that there is a bubble value b_t added to the fundamental value
- As long as the bubble term has the return r_t , then it pays to hold the asset
 - b_t rises over time
- Can have nonzero probability of bubble bursting
 - Just affects rate of increase of value of bubble until it bursts

Learning and Bubbles

- Agents may be learning about a new situation
 - Sometimes their estimate of the payoffs in a new industry are too high
 - They learn that they are wrong and price falls

Test for Bubbles

- For every bubble explanation of a situation, there exists a fundamental explanation
- Becomes a matter of the overall consistency and credibility of an explanation

Experiments

- Experiments are a partial way out
- Experiments with human subjects make it possible to control the fundamental price
 - The experimenter determines and knows the fundamental price
 - Fundamental price need not be estimated; it is a known quantity

Bubble Experiments

- Many such papers
 - Vernon Smith, Lucy Ackert and many others have done such experiments
 - Even when participants know the number of periods, terminal value and dividend payments, price tends to exceed the fundamental value
 - Close to the end of the experiment, price converges to terminal value
 - Mapping from these experiments to the market environment not so clear
 - Price deviations big or small?
 - Learning by participants
 - Successful participation in experimental asset markets not guaranteed

Conclusion

- Bubbles are a very interesting, and tricky, line of research
- Good and bad papers
 - Some results just reflect priors of researcher
 - Some are informative about the data and how they can be interpreted