

ANATOMY OF BUBBLES AND CRISES

1. DESIGN OF THE COURSE

- We will read about historical examples of runups and sudden collapses of asset values, looking for patterns common across the examples.
- We will study some mathematical models of asset markets. Models of well-functioning asset markets imply that prices in those markets will surprise us, sometimes in a major way.
- Thinking about the historical examples and the models, do we see reasons for regulatory intervention in these markets? Is there a role for monetary policy in controlling bubbles or preventing crashes? (Should Greenspan have “popped the dotcom bubble?”)
- I need to find out what you already know about calculus (multiple integrals), probability (random variables, joint distributions, probability density functions, the normal distribution) and asset pricing (efficient markets, stock price as random walk, asset prices as discounted present values, “market measures”).

2. MINIMAL DEFINITIONS OF CRASH AND BUBBLE

- Crash: A rapid fall in prices of some asset or class of assets.
- Bubble: A rise in, or high level of, asset prices that seems not to be justifiable on the basis of any reasonable estimate of the returns the asset will generate.

3. COMMON CHARACTERISTICS OF CRASHES

- In some, but not all, cases, preceded by what is commonly seen as a bubble.
- A large volume of trading.
- Liquidity problems.
- Defaults and bankruptcies
- The large volume of trade comes in part from the forced unwinding of leveraged positions.
- In some cases, interventions to limit damage: suspension of trading, special lender-of-last-resort credit facilities.
- In some cases, an overhang of wounded financial institutions to be “unwound” (US S&L, Japan).

4. COMMON CHARACTERISTICS OF BUBBLES

- The asset being traded has something “new” about it, so that investors can believe that its rapid rise in value represents the spread of information about the

Date: March 29, 2006.

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asset's high potential return, and that they personally are among the earlier to recognize this new opportunity.

- There are some informed commentators who are saying that the asset(s) are over-valued.
- Followed by a crash. [Are bubbles just those periods of optimism that turn out in hindsight to have been a mistake?]
- Asset purchases are leveraged: investors borrow in order to invest, and credit to do so is readily available.
- Participants in the market are very aware of the rate of growth of prices and of the capital gains component of their income from the asset. They are buying in part because they project further rapid growth in the asset price.
- Participation increases rapidly, with investors drawn in by the observed history of strong capital gains.
- Some participants agree that the asset prices are higher than justifiable by non-capital-gains returns, but believe that they can "get in and get out", profiting temporarily from capital gains, but avoiding the eventual crash.
- There is chicanery and fraud, which is uncovered after the bubble is over.

5. SOME HISTORICAL EXAMPLES

- Tulip Mania
- The South Sea Bubble
- John Law's bank.
- The Crash of 1929
- The Japanese bubble and its aftermath
- The Asian crises of the 90's
- The attacks on, and dismantlement of, the European ERM.
- The US S&L crisis
- The US dotcom boom

6. QUESTIONS WE WILL BE ASKING

- Do all, or some, bubbles and crashes indicate a market "malfunction"?
- If so, how do we tell when there is a bubble or crash, or whether the one we identify represents a malfunction?
- What, if anything, should be done to prevent, end, or mitigate the consequences of bubbles and crashes?