

Econ 323
Economic History of the U.S.

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Today's Topics

- Dow Jones Industrial Average
 - History
 - Declines
- Bubbles
 - Fundamentals
 - Buying on Margin
- Speculative Bubbles
 - Barber & Odean
- Next Class—Real Estate and Housing Bubbles

Brief Wall Street History

Dow Jones History

- Charlie Dow and Eddie Jones

Dow Jones Industrial Average

- Longest continual stock Index

Large DJIA declines (rank and percent)

1.	October 19, 1987	22% Drop
2.	October 28, 1929	13% Drop
3.	October 29, 1929	12% Drop
9.	October 15, 2008	8% Drop
17.	September 17, 2001	7% Drop

*4 in the top 20 from fall 2008

Bubbles



Bubbles

- A bubble inflates with hot air, then pops and collapses
- Asset price bubble: The price of an asset is bid up higher than is “reasonably” expected
- People pay lots for an asset because price is rising, but price is rising because people pay lots

Bubbles

- Examples: baseball cards, beanie babies, recent housing market
- Cannot say for sure if in a bubble, because it depends on people's expectations, which we don't know

Tulip Bubble



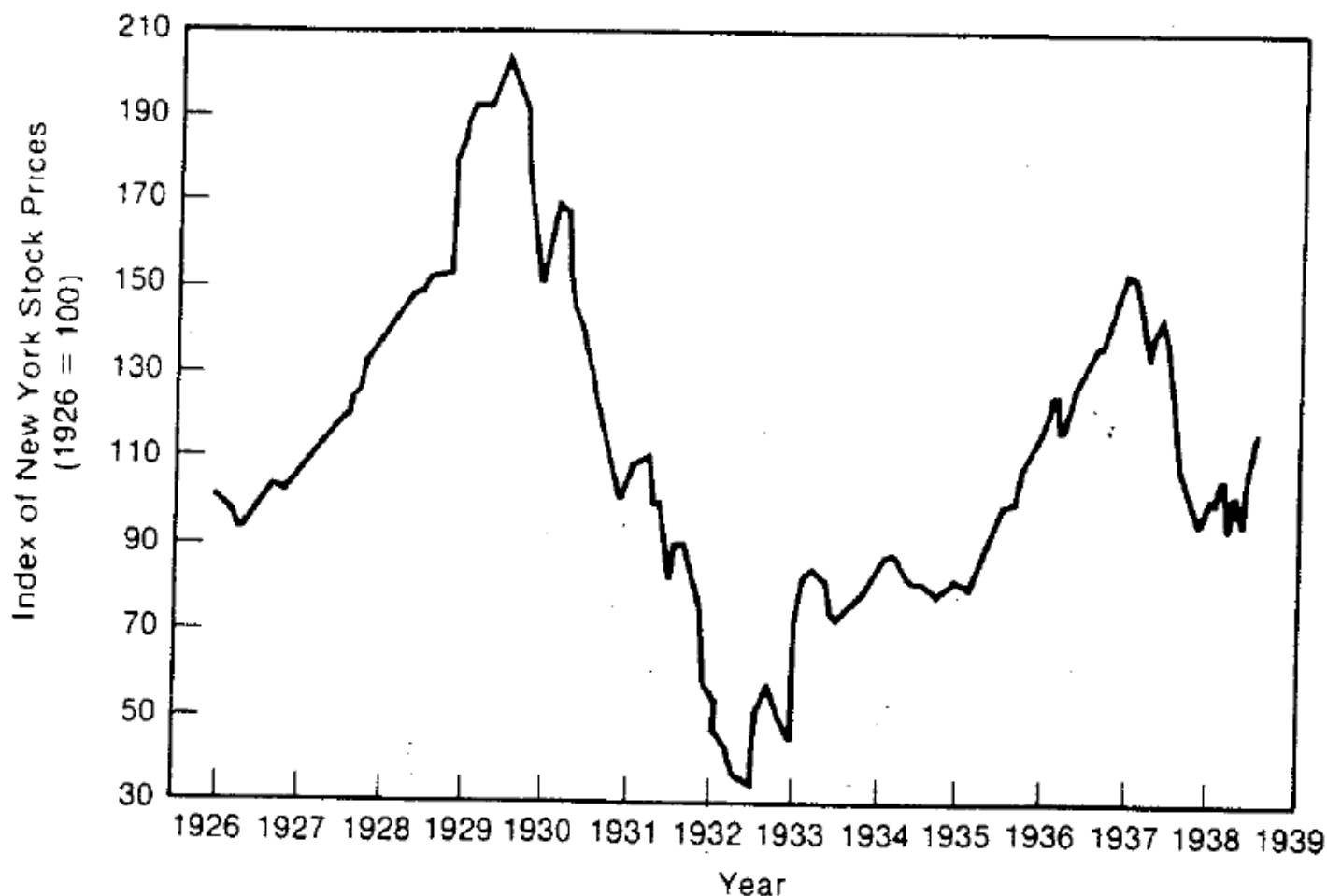
Tulip Bubble

- 1630s Holland
- Dutch Merchant had bulb worth \$30,000
- A sailor arrived with good news of overseas business, asked to stay for dinner
- Sailor ate an “onion” he found to go with the red herring
- By 1637, bubble crashed

Was 1929 stock market a speculative bubble?

- There WAS a big drop in stock prices
- DJIA fell from 386 to 41
- It took over 10 years to recover
- But was this a *bubble*?

The Standard Statistics Index of New York Stock Prices, 1926-1938



The rise and fall in stock prices shows the magnitude of speculative activity and the market crash. From a level of 100 in 1926, the market index soared to a high of 206 in September 1929 before collapsing to 34 in June 1932.

Source: Charles Kindleberger, *The World in Depression, 1929-1939* (Berkeley: University of California Press, 1973), pp. 110-111. Reprinted by permission of the University of California Press.

Fundamentals approach

- Stock price is based on expected future **dividends**, which are based on expected future **profits**
- As expected dividends rise, stock price rises
- The most someone will pay for a stock is the *discounted* sum of expected dividends

$$\text{Stock Price}_{1929} = \frac{\text{Expected Dividend 1930}}{(1+i)} + \frac{\text{Expected Dividend 1931}}{(1+i)^2} + \frac{\text{Expected Dividend 1932}}{(1+i)^3} + \dots$$

where i is the interest rate.

This is just an application of present discounted value.

Were stock buyers irrational?

Perhaps not:

- A Depression is a rare event, so it would have been almost impossible to predict
- Only after 1928 do stock prices increase quicker than dividends

Were stock buyers irrational?

Perhaps not:

- If expected dividends (based on the 1922-29 actual dividend growth) are used, then in 1929 the implied interest rate is 14%
 - This is *high* compared to 5% typical, which *suggests stock prices were actually too low in 1929!*

Were stock buyers irrational?

Perhaps not:

- Barsky and DeLong 1990 show that “fundamental” investors were buying stocks in 1929
- Even Irving Fisher (famous and respected economist) in December 1929 was buying stock!

Buying on Margin

- New financial innovation
- In 1929, 10% needed as margin requirement
- Today, 50% needed
- Regulated by the Fed
- Allows for greater % gains (or losses!) through **leverage**
- You can buy more stocks using leverage

Buying on Margin

- Example: Pay \$10 for \$100 stock (borrow \$90). If stock price goes up to \$105, then you make \$5 profit (after paying back loan)
 - Original \$10 increased by \$5,
so rate of return is $5/10 = 50\%$

Buying on Margin

- Example: If pay \$100 for \$100 stock and if stock price goes up to \$105, then you still make \$5 profit
 - But original \$100 increased by \$5, so rate of return is $5/100 = 5\%$

Margin Call

- If stock broker notices stock price falling, he won't let price fall below what he has loaned to you
- He might make you repay the loan (**Margin Call**).
- Often this forces you to sell, which makes prices fall even faster if lots of margin calls are made

Buying on Margin

- House mortgage financing uses leverage too, since borrower keeps all the gain.
- Today we see the trouble in the leveraged housing market when prices fall (note: the mortgage lender can lose *more* since can't foreclose (margin call) before price falls too low!)

Program Trading

- Today, software will generate “sell” orders if stock prices falls below a set threshold
- This makes sense for individual investor
- But if everyone's software kicks in, then mass selling
- 1987 Crash involved program trading
- ‘Circuit breakers’ put into effect afterwards
 - It's not clear if these efforts will stop slide, or only delay slide until reopening

Market “Correction”

- A momentary drop in stock values after stock had become overvalued (bursting of a small bubble)
- Different from the onset of a bear market, where stock prices continue to fall
- Impossible to know if a fall is a correction or a prolonged slide

DJIA

Zoom: [1d](#) [5d](#) [1m](#) [3m](#) [6m](#) [YTD](#) [1y](#) [5y](#) [10y](#) [All](#)

Mar 31, 2000 - Apr 04, 2016 +6645.05 (59.8%)



Barber & Odean JEP Winter '01

- Internet has reduced middle-men *but this is only good if middlemen don't give good advice*
- More information available, but is it useful?
- **Roulette Wheel** analogy:
 - If you know when, where, how produced, you still can't predict the number!

Barber & Odean JEP Winter '01

- From psychology:
- **Illusion of knowledge**—more data and you believe you have better ability to predict
 - People tend to seek out only confirming evidence & opinions
- **Illusion of control**—more active traders believe that they can influence outcomes (returns)

Conditions Most Conducive to Speculative Bubbles

- 1. Active and Inexperienced Traders**
- 2. Lots of Cash Available to Buy Stocks**
- 3. Great Uncertainty Regarding Future
Stock Value**

Conditions Most Conducive to Speculative Bubbles **(Evidence from 1990s)**

1. Active and Inexperienced Traders

- 1/2 of all traders in 2000 started in 1990s**
- Turnover in 1999=**
 - Dollar value of trades divided by market capitalization**
 - Was 78% in 1990s, the highest value since 1929**

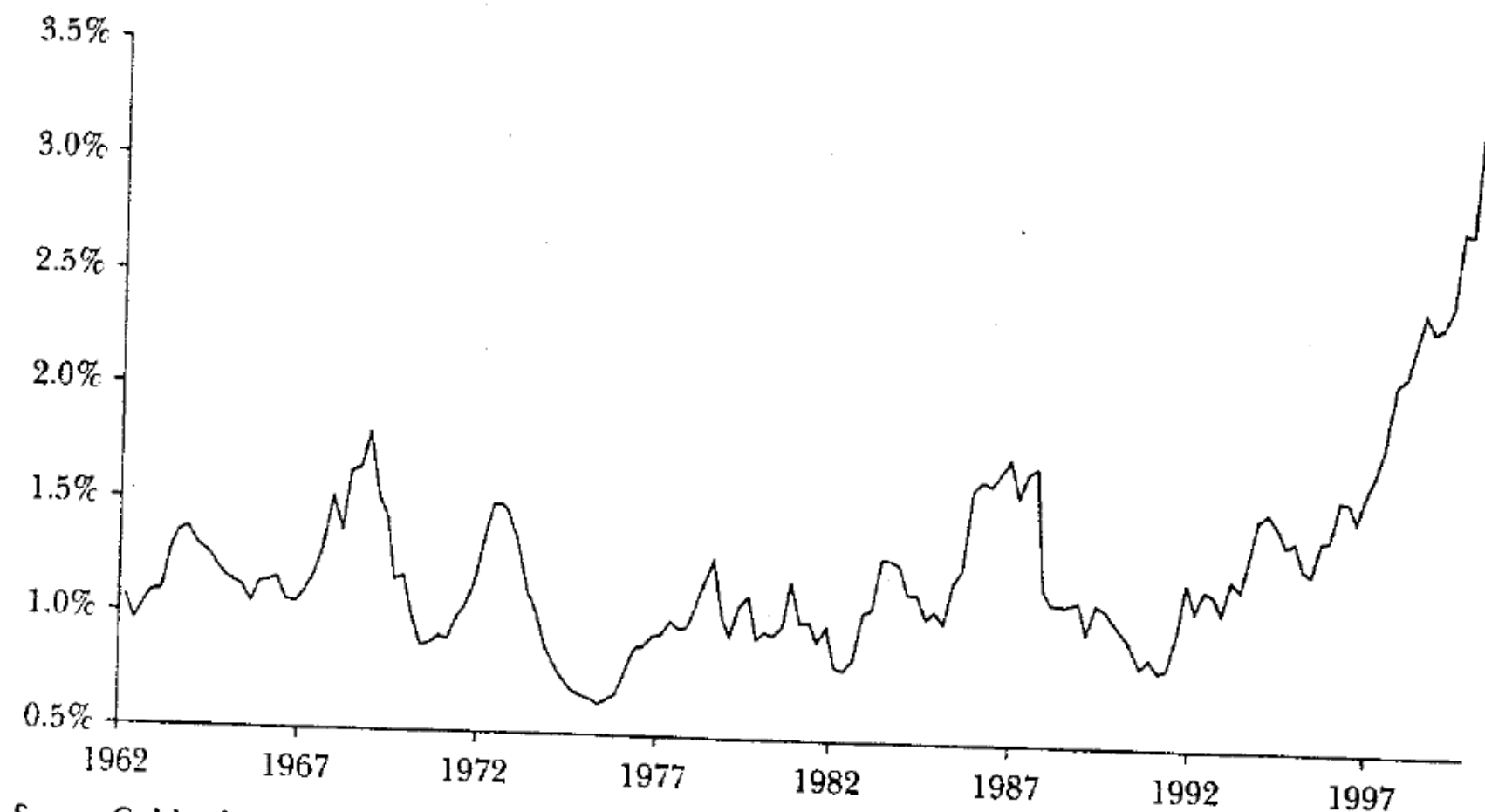
Conditions Most Conducive to Speculative Bubbles (Evidence from 1990s)

2. Lots of Cash Available to Buy Stocks

- Strong economy**
- High margin debt**

Figure 2

Margin Debt for U.S. Households Divided by Disposable Personal Income



Source: Goldstein and Krutov (2000).

Conditions Most Conducive to Speculative Bubbles (Evidence from 1990s)

3. Great Uncertainty Regarding Future Stock Value

- E-commerce firms hard to value**

Arbitrage should eliminate the bubble!

- Arbitrageurs—people who make profit when market is “irrational”
- If market is overvalued, then can make profits by *selling short*
- Selling short will reduce prices today, in anticipation of future price declines
- However, if stock mispricing persists and continues for a long time, then may not be able to short the market
- Today have new rules *against* selling short