FINC 381/642: Money and Capital Markets
Fall 2025

Chapter 6: Are Financial Markets Efficient?

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Today's Agenda

- The Efficient Market Hypothesis
- Evidence on the Efficient Market Hypothesis
- Why the Efficient Market Hypothesis Does Not Imply That Financial Markets Are Efficient
- Behavioral Finance

T/P/S #1: Market Efficiency?

Q: Do you think financial markets are broadly efficient?

Q: How do we even set a benchmark for efficiency?

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Q: How do we even set a benchmark for efficiency?

A: informational, allocative, and operational efficiency

The Efficient Market Hypothesis

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... which is closely related to...

Defn: The rational expectations theory proposes that economic agents make calculated decisions based on all available information, past and present, and try to learn the structure of the economy, nature of policy rules, i.e., act like econometricians

Rates of Return Revisited

Remember (from Ch. 3): The rate of return from holding an asset (realized at time $t+1$) can be expressed as follows:

$$R = \frac{P_{t+1} - P_t + C}{P_t}$$

where

- R is the return on the asset between $t, t+1$
- P_{t+1} is the price of the asset at time $t+1$
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The only unknown at time t is P_{t+1}...

Rates of Return and Rational Expectations

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Imagine there is some optimal forecast (‘*of*’) of financial assets based on all available information (i.e., “rational expectations”):

$$P^e_{t+1} = P^{of}_{t+1} \Leftrightarrow R^e = R^{of}$$

Rates of Return and Rational Expectations

Problem in evaluating market efficiency through this lens:

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In an efficient market:

$$R^* = R^e = R^{of}$$

i.e., a security's price/expected return fully reflects an optimal forecast based on all available information

- If $R^{of} > R^*, P_t \uparrow \rightarrow R^{of} \downarrow$ until $R^{of} = R^*$

Rationale Behind the EMH

No arbitrage condition: In an efficient market, all unexploited profit opportunities (or expectations thereof) will be eliminated

Key: Not everyone in a financial market must be well informed about a security for its price to be driven to the point at which the EMH holds, i.e., just need a critical mass of arbitrageurs

Evidence on the Efficient Market Hypothesis

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Consistent with the EMH:

- Mutual funds do not consistently beat the market (but they charge high management fees, often lowering net returns below market returns)
- Separated into groups based on performance in a given period, the mutual funds that did well in the first period tend to underperform the market in the second period

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Explains the recent popularity of exchange-traded fund (ETFs)!

Q: Why pay to beat the market if you can't??

Random Walks and Stock Prices

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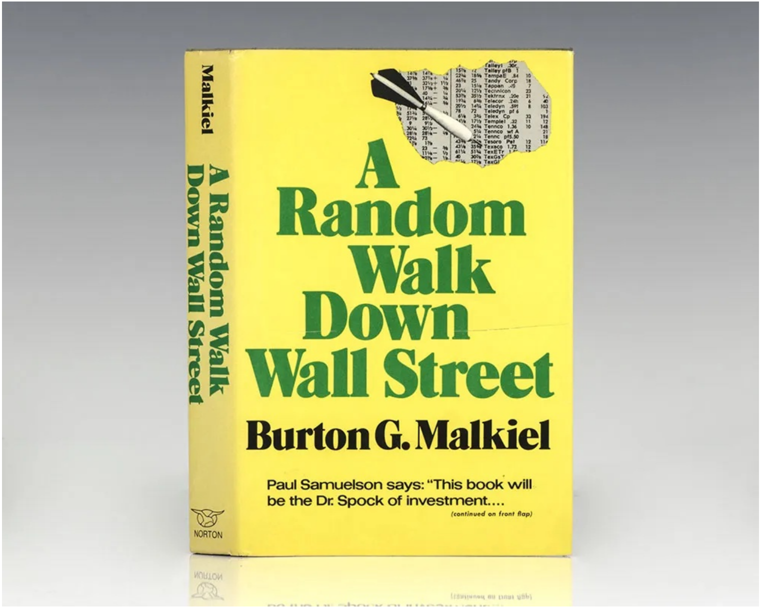
Empirical evidence: Generally supports the EMH view that stock prices are not predictable and follow a random walk


Malkiel
A Random Walk Down Wall Street
NORTON
A Random Walk Down Wall Street
Burton G. Malkiel
Paul Samuelson says: "This book will be the Dr. Spock of investment....
(continued on front flap)

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Which was the inspiration for this passage from our textbook:

"The *Wall Street Journal*, for example, used to have a regular feature called "Investment Dartboard" that compared how well stocks picked by investment advisers did relative to stocks picked by throwing darts.* Did the advisers win? To their embarrassment, the dartboard beat them as often as they beat the dartboard. Furthermore, even when the comparison included only advisers who had been successful in the past in predicting the stock market, the advisers still didn't regularly beat the dartboard."

*No monkeys were harmed, *WSJ* staff got to throw the darts...

Implications of the EMH?

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A: Unless it affects demand via regulatory requirements, e.g., pension funds can only hold investment-grade assets (BBB+)?

Evidence Against Market Efficiency (or "Anomalies")

Small-firm effect:

- Empirical evidence that small firms have earned abnormally high returns over long periods of time, even adjusting for greater risk: predictable way to beat the market?

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Market overreactions:

- Empirical evidence that stock prices may overreact to certain news announcements (e.g., new earnings info that wasn't public), pricing errors are corrected only slowly: arbitrage profits?

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Lagged incorporation of news:

- Empirical evidence that stock prices do not always instantaneously adjust to profit announcements (info that wasn't previously public): predictably slow to rise when beating expectations, slow to fall when missing expectations

Why the Efficient Market Hypothesis Does Not Imply That Financial Markets Are Efficient

A Stronger View of Market Efficiency

A stronger view on market efficiency: Not only do prices reflect optimal forecasts using all available information, they also reflect the true fundamental (intrinsic) value of the securities

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Market fundamentals are factors that have a direct impact on future income streams of a security:

- Micro: revenue, growth potential, regulatory treatment...
- Macro: interest rates, inflation, unemployment...

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1. one investment is as good as any other because all securities are priced correctly
2. a security's price reflects all available information about the intrinsic value of the security
3. security prices can be used by managers to assess their cost of capital (cost of financing their investments) accurately and hence help them make the correct decisions about whether a specific investment is worth making

Efficiency and Market Fundamentals

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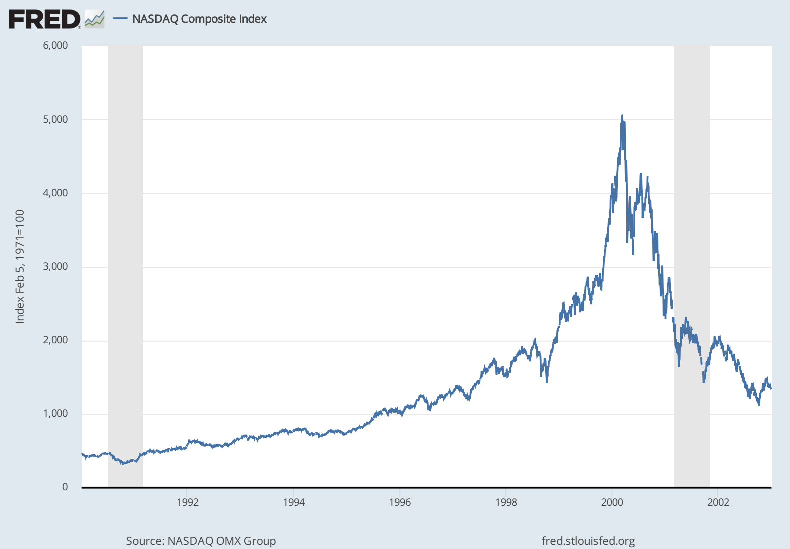
Bubbles and crashes are evidence against this stronger form of market efficiency, but less of an argument against EMH

- **Defn**: A bubble is a large, persistent deviation of an asset's price from its fundamental value
- "Bubbles typically arise from either exaggeration or unwarranted extrapolation of genuinely favorable trends", i.e., improving fundamentals (Blinder 2013, p. 31)

Dotcom Bubble: Nasdaq +534% in 5 years



EMH and Bubbles

Nothing in the EMH rules out large changes in stock prices:

- A large change in stock prices can result from new information that produces a dramatic decline in optimal forecasts of the future valuation of firms

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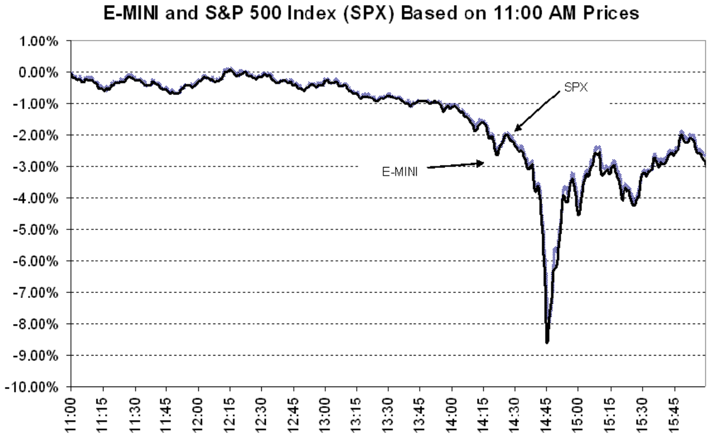
But economists struggle to identify fundamental changes in the economy that can explain the Black Monday or DotCom crashes

- Alt explanation: factors other than market fundamentals probably influenced asset prices

High-frequency trading and the "Flash Crash" (5/6/10)



Source: SEC

Defn: spoofing is "the illegal practice of bidding or offering with intent to cancel before execution," market manipulation

Behavioral Finance

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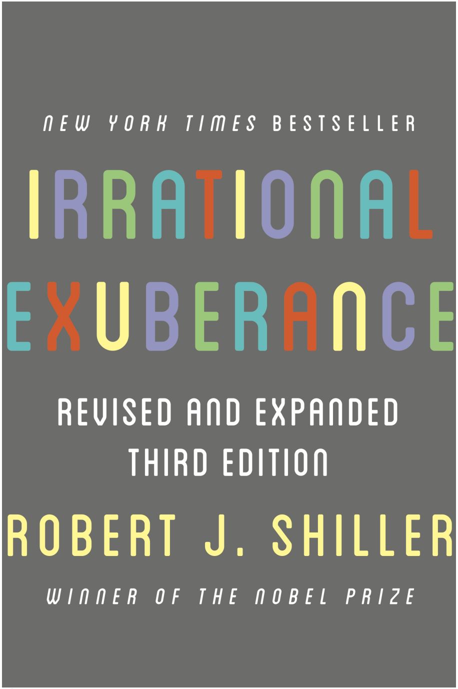
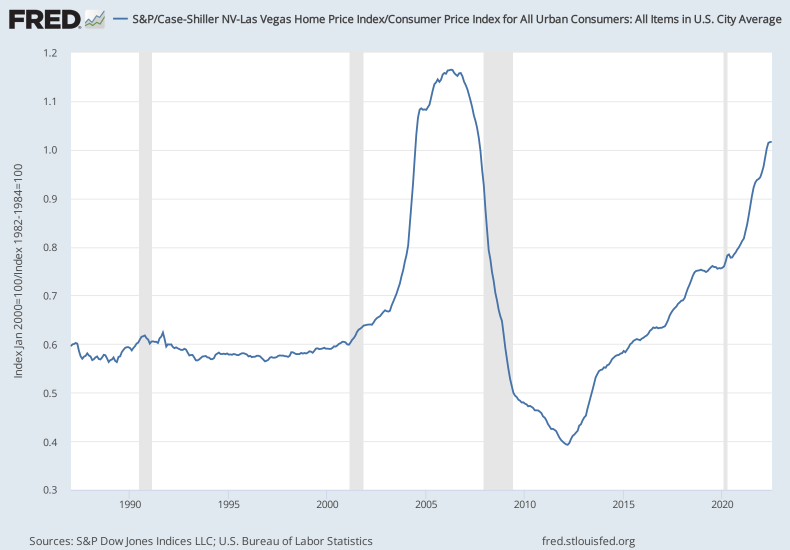
Can also try to ~~rationalize~~ explain “bubbles”...


NEW YORK TIMES BESTSELLER
IRRATIONAL EXUBERANCE
REVISED AND EXPANDED THIRD EDITION
ROBERT J. SHILLER
WINNER OF THE NOBEL PRIZE


FRED
S&P/Case-Shiller NV-Las Vegas Home Price Index/Consumer Price Index for All Urban Consumers: All Items in U.S. City Average
Index Jan 2000=100/Index 1982-1984=100
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
1990
1995
2000
2005
2010
2015
2020
Sources: S&P Dow Jones Indices LLC; U.S. Bureau of Labor Statistics
fred.stlouisfed.org

Recap: What We Covered in Ch. 6

- The Efficient Market Hypothesis
- Evidence on the Efficient Market Hypothesis
- Why the Efficient Market Hypothesis Does Not Imply That Financial Markets Are Efficient
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For Next Tuesday:

Please read Ch. 8: Why Do Financial Crises Occur and Why Are They So Damaging?