Market Efficiency

Objectives

- Describe the three types of market efficiency
- Describe the evidence in support of efficient markets
- Describe the evidence against efficient markets
- Decide where you stand in this debate
- This is a qualitative discussion – I don't have any recommended problems

Thought Question

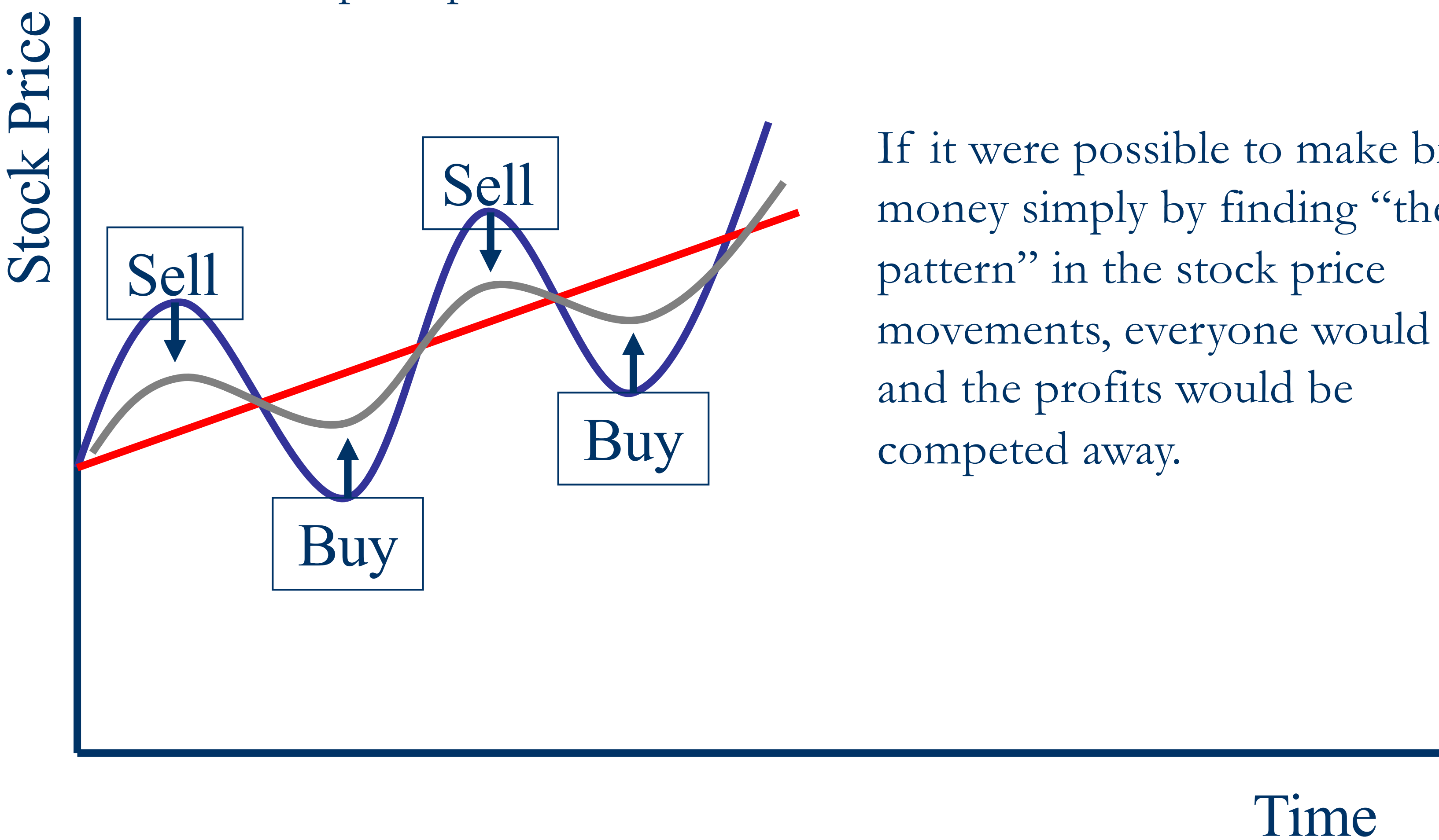
- What if you have found out the following:
  - Buy if out of the 20 trading days for the past month, stock XYZ has been rising for more than 2/3 of the time.
  - Sell if out of the 20 trading days for the past month, stock XYZ has been falling for more than 2/3 of the time.
  - By following this rule, you are able to earn returns that are “abnormally high”.

A Stock price reflects information

- If you have spotted XYZ’s stock pattern that guarantee you pure profit, what should you do?
  - You should definitely exploit it.
  - How? Borrow as much as you can to invest.
- The process of exploiting it actually makes the opportunity vanish because:
  - You would bid up XYZ stock price when you think it is hot. Higher prices mean lower expected return.
  - You would also likely bid down XYZ stock price when you think it is cold. Lower prices mean higher expected return.
  - In short, the fact that you have figured out a stock price movement is very likely to be reflected by the stock price.
  - The more you invest the faster the pattern will be eliminated.

Price movement pattern

Investor behavior tends to eliminate any profit opportunity associated with stock price patterns.



If it were possible to make big money simply by finding "the pattern" in the stock price movements, everyone would do it and the profits would be competed away.

The army

- Imagine not only you, but an “army” of intelligent, well-informed security analysts, arbitrageurs, traders, who literally spend their lives hunting for securities which are mispriced or following a price moving pattern based on currently available information.
- They have high-tech computers, subscription to professional databases, up-to-date information on thousands of firms, state-of-the-art analytical technique, etc.
- These people can assess, assimilate and act on information, very quickly.
- In their intense search for mispriced securities, professional investors may “police” the market so efficiently that they drive the prices of all assets to fully reflect all available information.

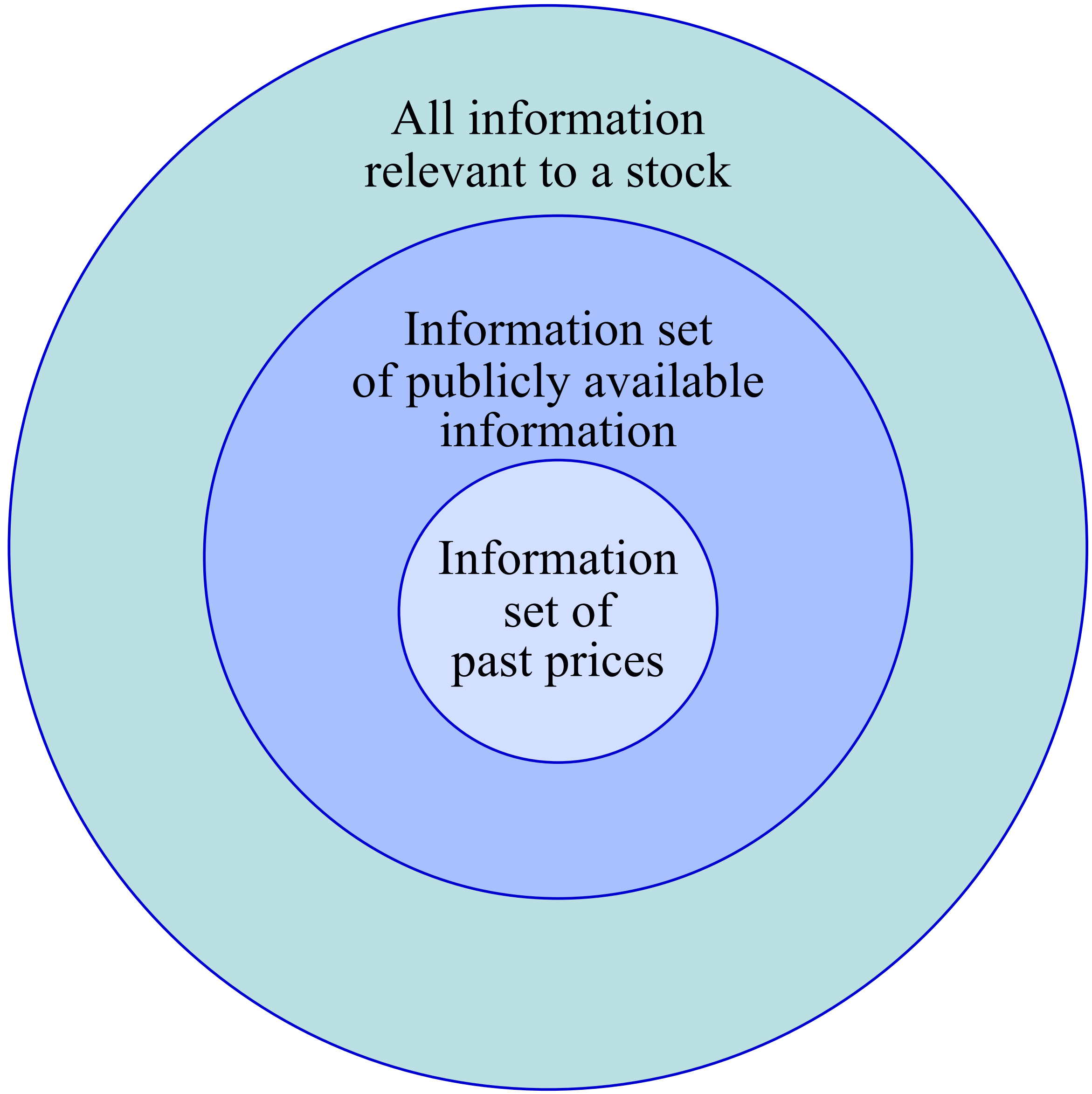
Implications

- Competition for finding mispriced securities is fierce
- Such competition always kills the “sure-profit” pattern because were there one, it would have been exploited by someone who first spotted it.
- The first one does make profit
  - But the “very first” one is not likely to be you (or me).
- The implications:
  - stock prices should have reflected all available information.
  - stock returns should be unpredictable!

Definition: Efficient Capital Markets

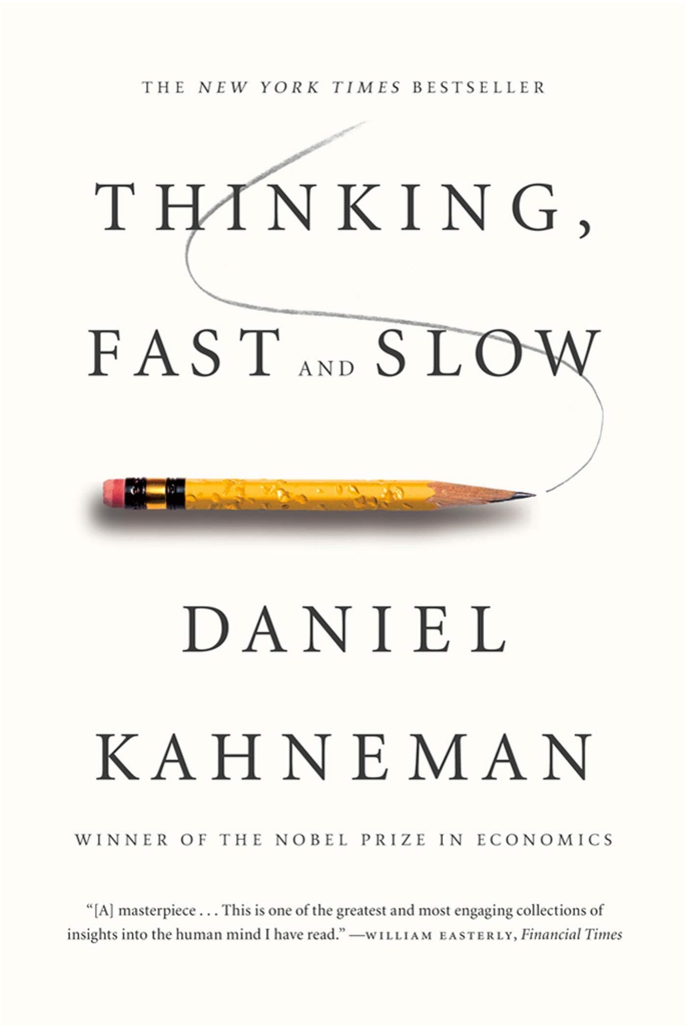
- An *efficient* capital market is one in which stock prices fully reflect available information.
- Three different types of market efficiency:
  - Weak Form
    - Security prices reflect all information found in past prices and volume.
  - Semi-Strong Form
    - Security prices reflect all publicly available information.
  - Strong Form
    - Security prices reflect all information — public and private.

Relationship among Three Different Information Sets

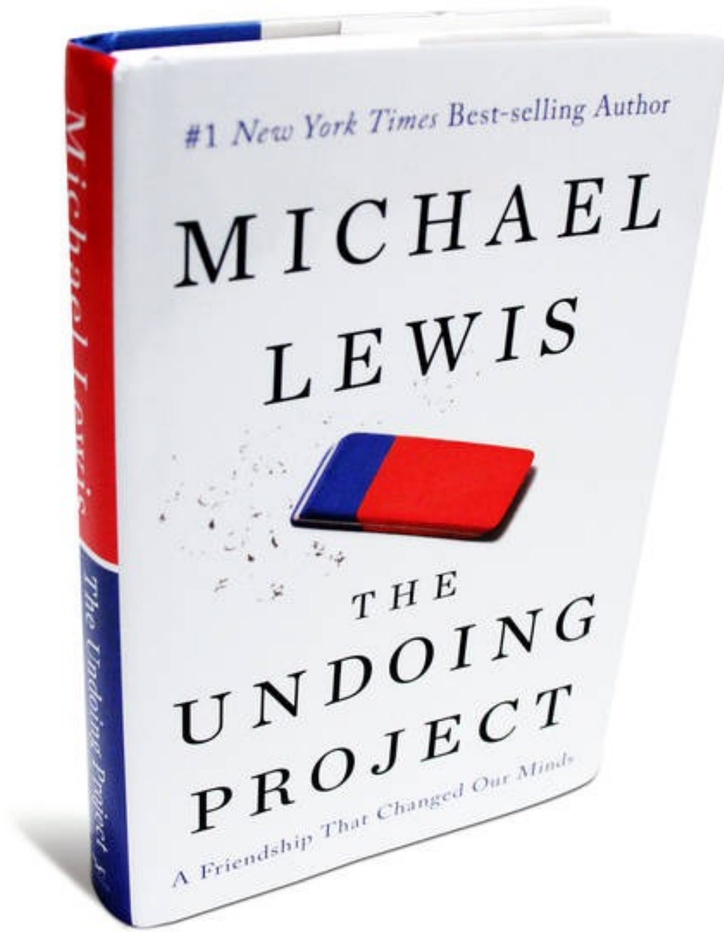


Counter-argument: Behavioral Economics and Behavioral Finance

Book tip for a great summary of behavioral economics, the basis of the critique of the Efficient Markets Hypothesis



Book tip on the researchers that created Behavioral Economics



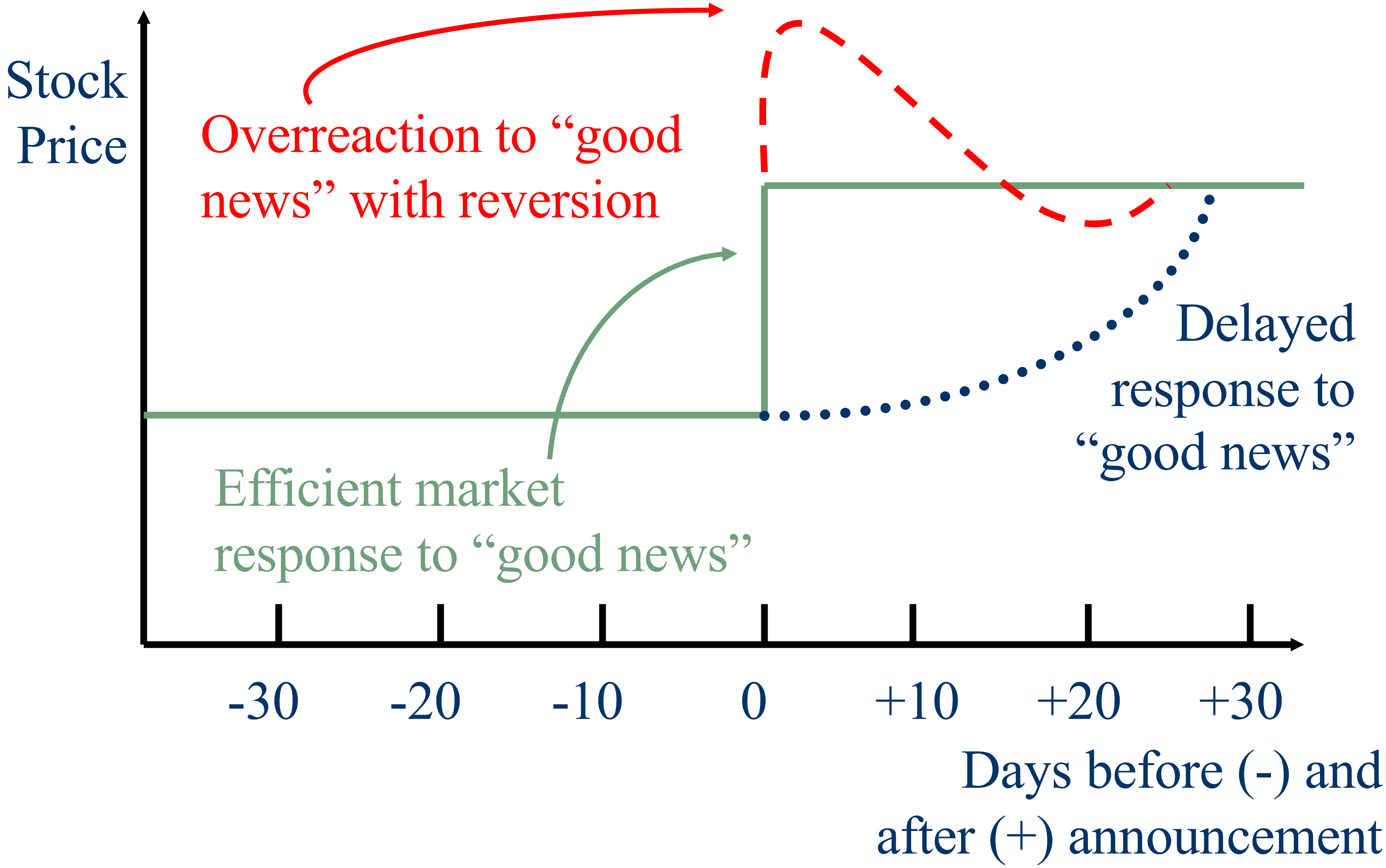
A theory of sharks

- Think of market efficiency as a “theory of sharks”:
  - Not a theory of rational *homo economicus*
  - In liquid securities markets, profit opportunities bring about discrepancies between demand and supply.
  - Well financed, knowledgeable arbitrageurs spot these opportunities, pile on, and by their actions they close aberrant price differentials.

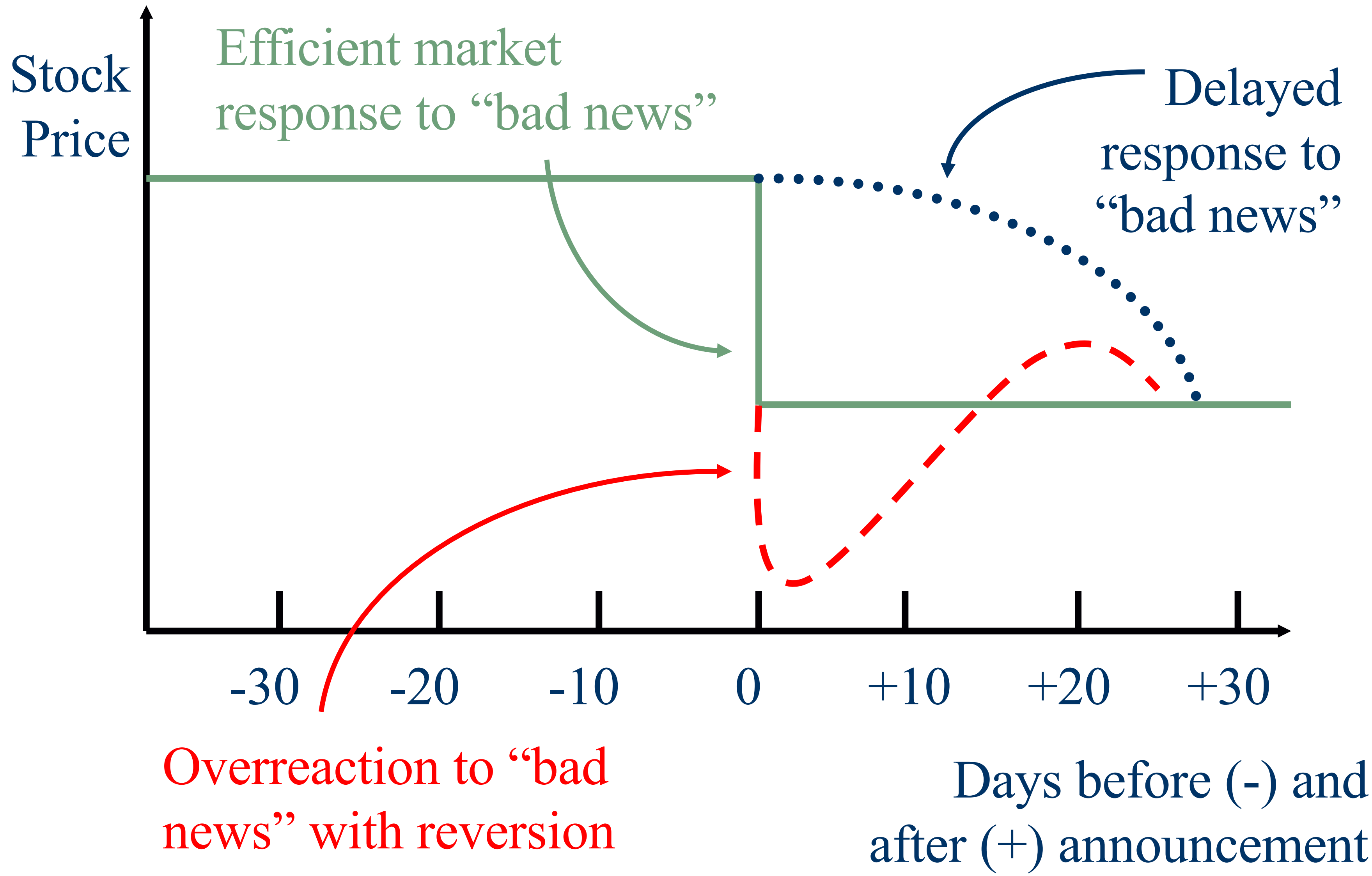
How prices react to new information

- What if new information about a security arrives to the market?
- How does the market price react?
- What does the efficient markets hypothesis predict?
- Let's look at the arrival of good news first…

Stock Price Reaction to New Information – Good News



Stock Price Reaction to New Information – Bad News



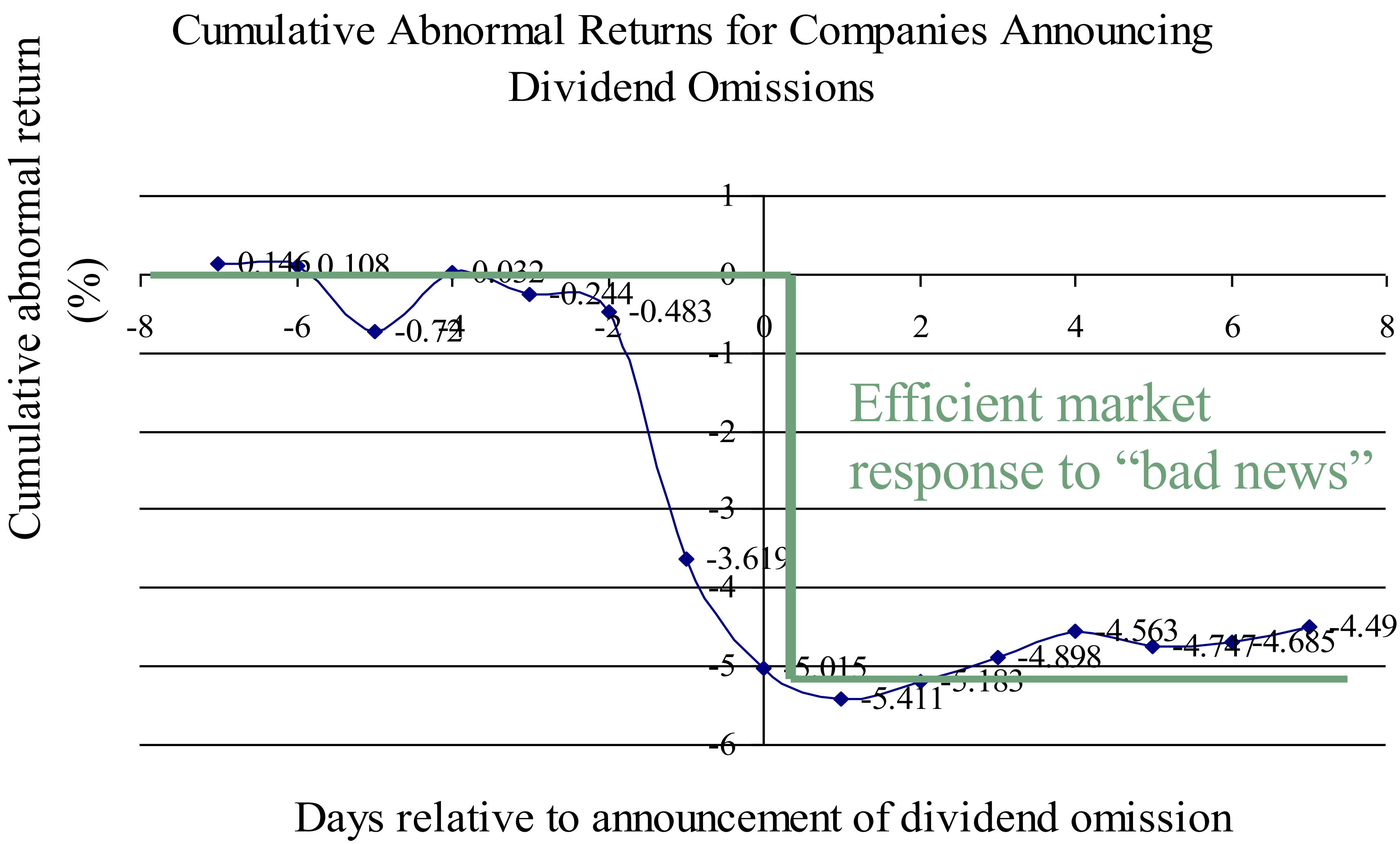
Aside: How long does it take for new information to be incorporated?

- Remember the CNBC video we watched when we talked about stock valuation?

The Evidence in Favor of EMH

- The record on the EMH is extensive, and in large measure it is reassuring to advocates of the efficiency of markets.
- We will look at two tests of the semi-strong form hypothesis:
  - Event studies: does the market quickly and accurately respond to new information?
  - The record of professionally managed investment firms.

Event Studies: Dividend Omissions

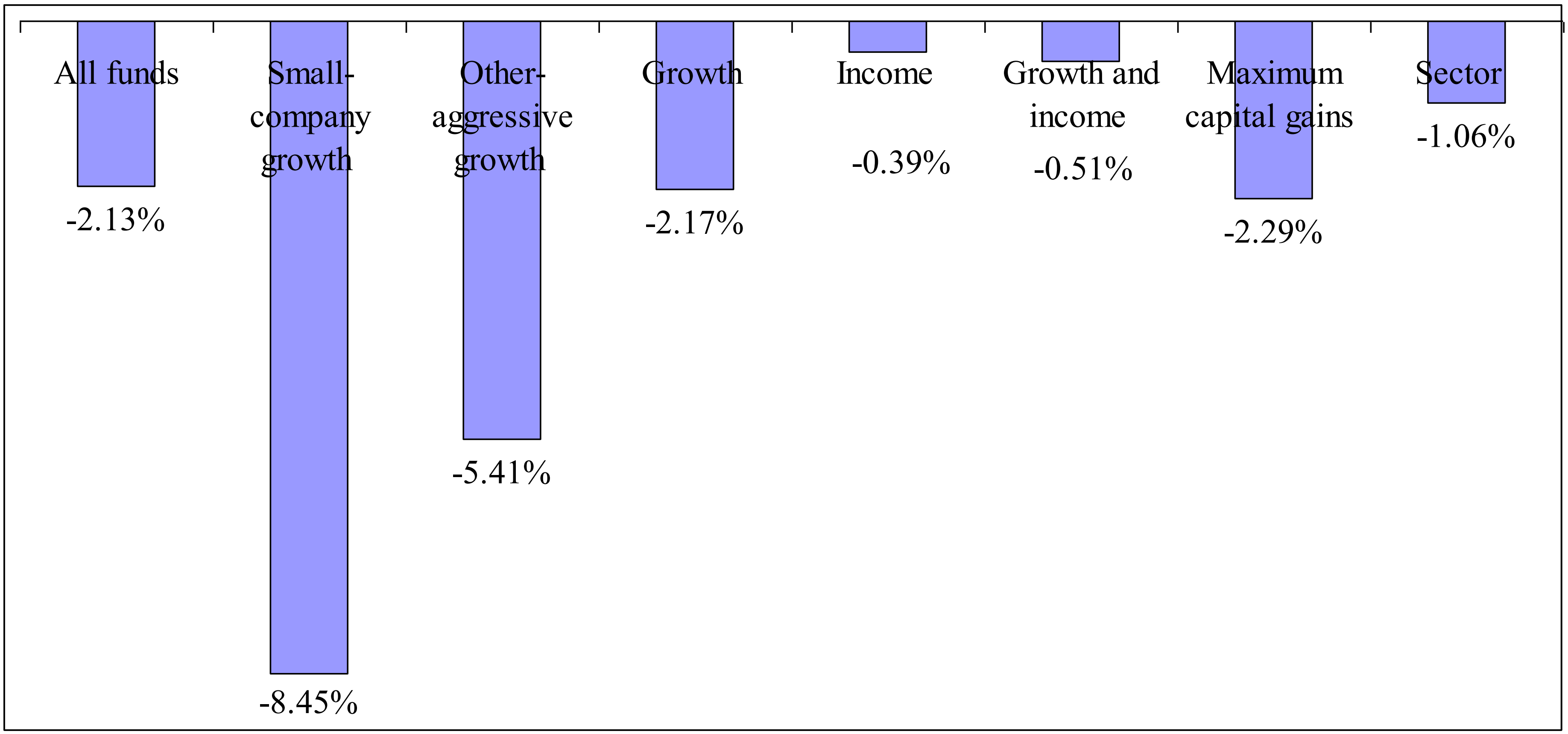


S.H. Szewczyk, G.P. Tsetsekos, and Z. Santout "Do Dividend Omissions Signal Future Earnings or Past Earnings?" *Journal of Investing* (Spring 1997)

The Record of Mutual Funds

- If the market is semi-strong-form efficient, then no matter what publicly available information mutual-fund managers rely on to pick stocks, their average returns should be the same as those of the average investor in the market as a whole.
- We can test efficiency by comparing the performance of professionally managed mutual funds with the performance of a market index.

The Record of Mutual Funds



Taken from Lubos Pastor and Robert F. Stambaugh, “Mutual Fund Performance and Seemingly Unrelated Assets,” *Journal of Financial Exonomics,* 63 (2002).

Testing the Strong Form of the EMH

- One group of studies of strong-form market efficiency investigates insider trading.
- A number of studies support the view that insider trading is abnormally profitable.
- Thus, strong-form efficiency does not seem to be substantiated by the evidence.

Congressional investment performance

Abnormal Returns from the Common Stock Investments of the U.S. Senate

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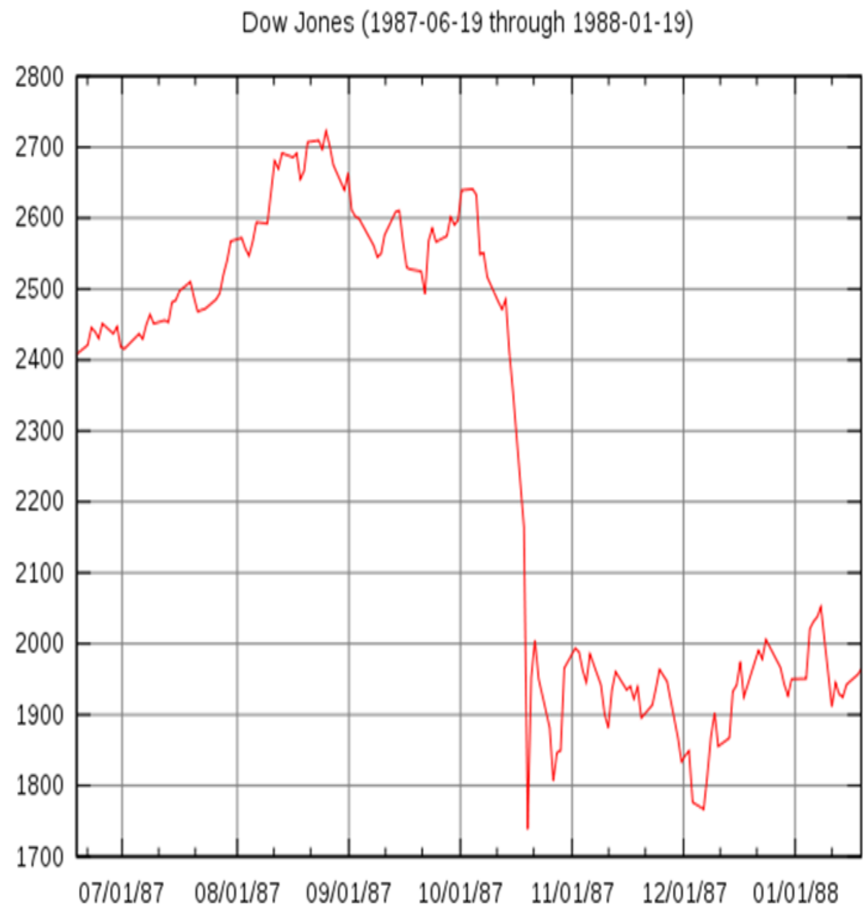
Abstract

The actions of the federal government can have a profound impact on financial markets. As prominent participants in the government decision making process, U.S. Senators are likely to have knowledge of forthcoming government actions before the information becomes public. This could provide them with an informational advantage over other investors. We test for abnormal returns from the common stock investments of members of the U.S. Senate during the period 1993–1998. We document that a portfolio that mimics the purchases of U.S. Senators beats the market by 85 basis points per month, while a portfolio that mimics the sales of Senators lags the market by 12 basis points per month. The large difference in the returns of stocks bought and sold (nearly one percentage point per month) is economically large and reliably positive.

Implications of the EMH for Corporate Finance

- Because information is reflected in security prices quickly, investors should only expect to obtain a normal rate of return.
  - Awareness of information when it is released does an investor little good.
  - The price adjusts before the investor has time to act on it.
  - Investing in securities is a zero NPV proposition
- Firms should expect to receive the fair value for securities that they sell.
  - Financial managers cannot “time” issues of stocks and bonds using publicly available information.
  - Valuable financing opportunities that arise from fooling investors are unavailable in efficient markets.
- The price of a company’s stock cannot be affected by a change in accounting.

Stock market crash of 1987



TRIGGERING THE 1987 STOCK MARKET CRASH

Antitakeover Provisions in the Proposed House Ways and Means Tax Bill?*

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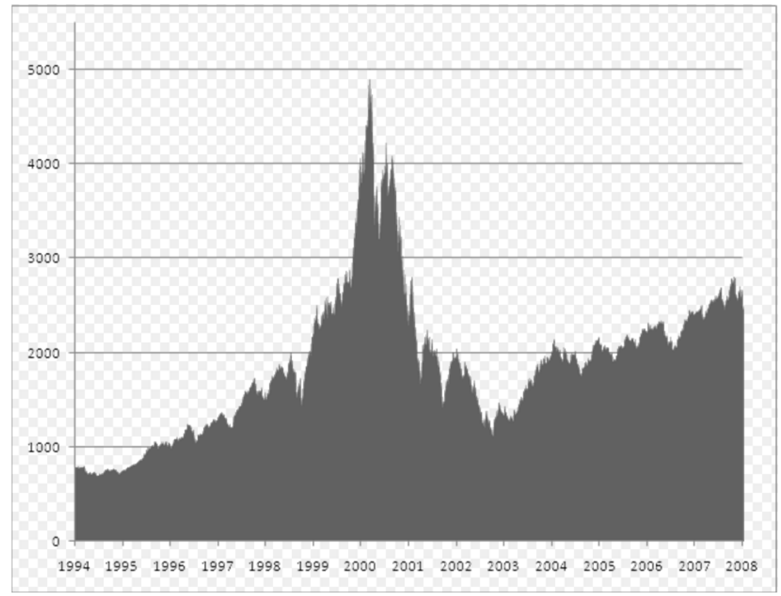
We present evidence that a tax bill containing antitakeover provisions proposed by the U.S. House Ways and Means Committee on October 13, 1987 and approved by the Committee on October 15 was the fundamental economic event causing the greater than 10% decline in the stock market on October 14–16, which arguably triggered the October 19 crash. The bill, which eventually passed without most of the antitakeover provisions, would have limited the deductibility of interest on debt incurred to finance corporate takeovers, leveraged buyouts and recapitalizations, and imposed other restrictions on hostile takeovers.

Dot-Com Bubble: Eugene Fama interview

“Well, economists are arrogant people. And because they can’t explain something, it becomes Irrational.

The word “bubble” drives me nuts. For example, people say “the Internet bubble.” Well, if you go back to that time, most people were saying the Internet was going to revolutionize business, so companies that had a leg up on the Internet were going to become very successful.

I did a calculation. Microsoft was an example of a corporation that came from the previous revolution, the computer revolution. It was hugely profitable and successful. How many Microsofts would it have taken to justify the whole set of Internet valuations? I think I estimated it to be something like 1.4.”



Do you believe in the Efficient Markets Hypothesis?