13.1 Can Financing Decisions Create Value?

13.2 A Description of Efficient Capital Markets

13.3 The Different Types of Efficiency

13.4 The Evidence

13.5 Implications for Corporate Finance

13.6 Summary and Conclusions

13.1 Can Financing Decisions Create Value?

- Earlier parts of the book show how to evaluate investment projects according to NPV criterion.
- The next five chapters concern *financing* decisions.

What Sort of Financing Decisions?

- Typical financing decisions include:
  - How much debt and equity to sell
  - When (or if) to pay dividends
  - When to sell debt and equity
- Just as we can use NPV criteria to evaluate investment decisions, we can use NPV to evaluate financing decisions.

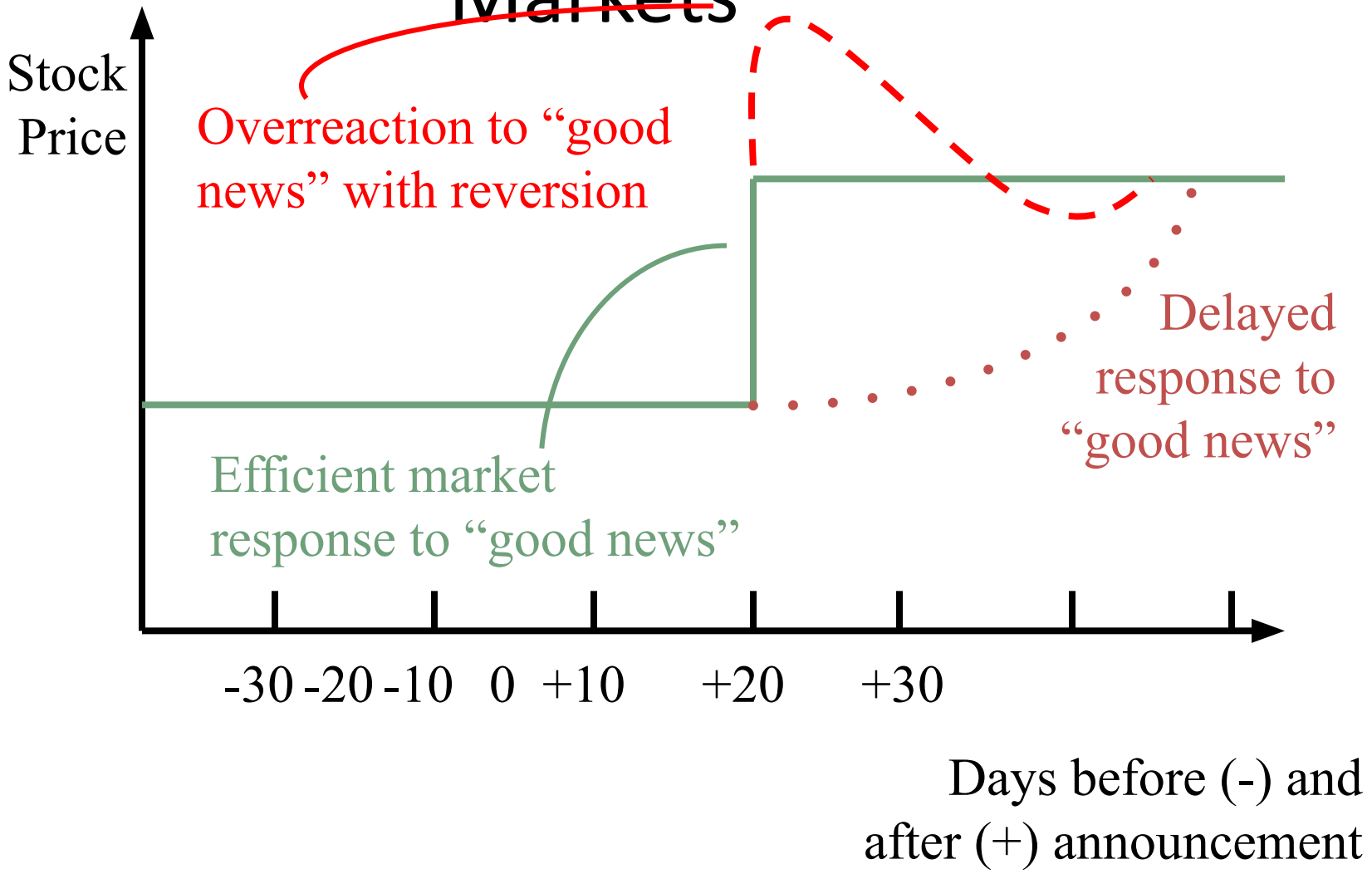
How to Create Value through Financing

1. Fool Investors
   - Empirical evidence suggests that it is hard to fool investors consistently.
2. Reduce Costs or Increase Subsidies
   - Certain forms of financing have tax advantages or carry other subsidies.
3. Create a New Security
   - Sometimes a firm can find a previously-unsatisfied clientele and issue new securities at favourable prices.
   - In the long-run, this value creation is relatively small, however.

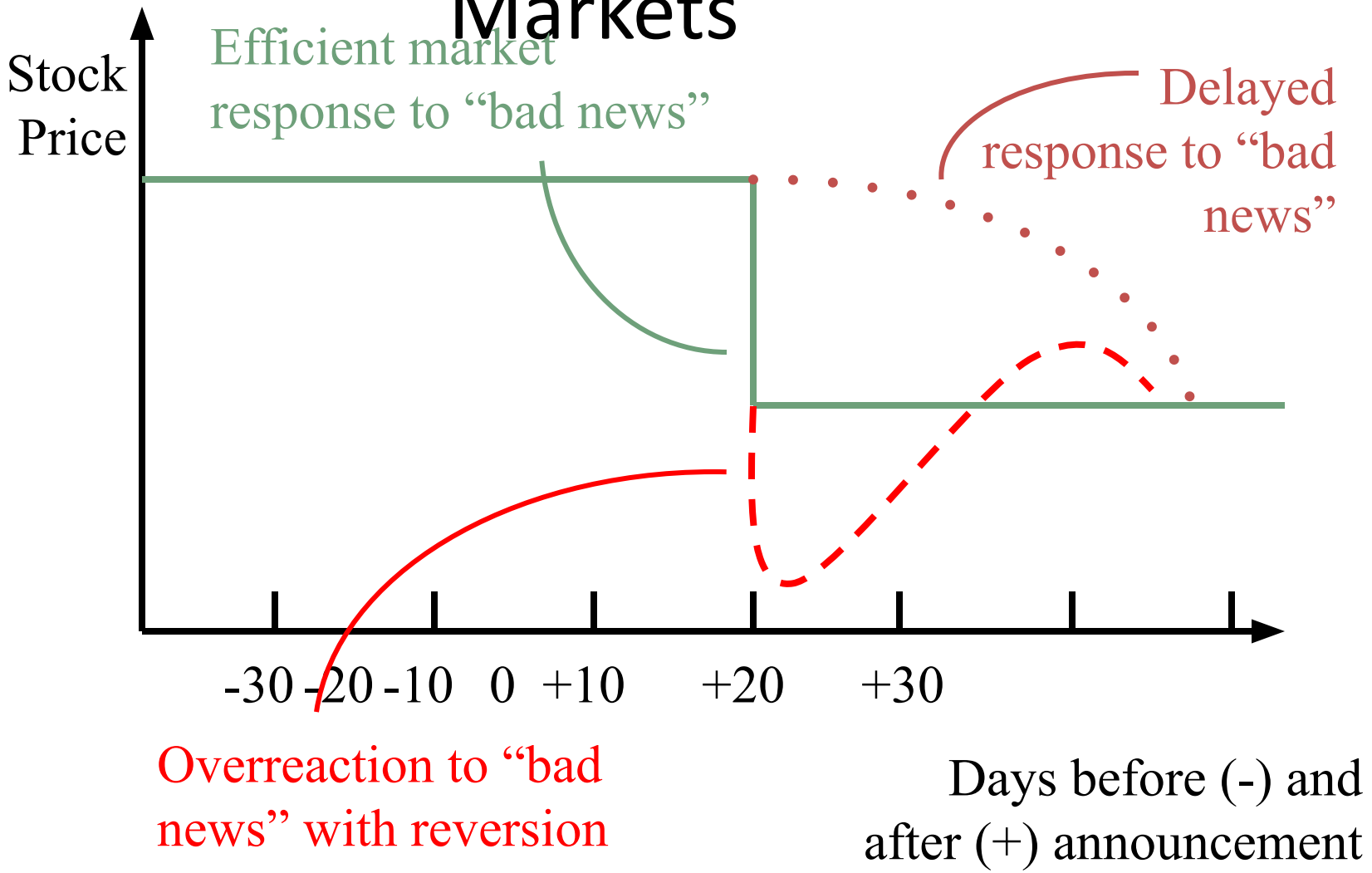
13.2 A Description of Efficient Capital Markets

- An *efficient* capital market is one in which stock prices fully reflect available information.
- The EMH has implications for investors and firms.
  - Since information is reflected in security prices quickly, knowing information *when it is released* does an investor no good.
  - Firms should expect to receive the fair value for securities that they sell. Firms cannot profit from fooling investors in an efficient market.

Reaction of Stock Price to New Information in Efficient and Inefficient Markets



Reaction of Stock Price to New Information in Efficient and Inefficient Markets



13.3 The Different Types of 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.

Weak Form Market Efficiency

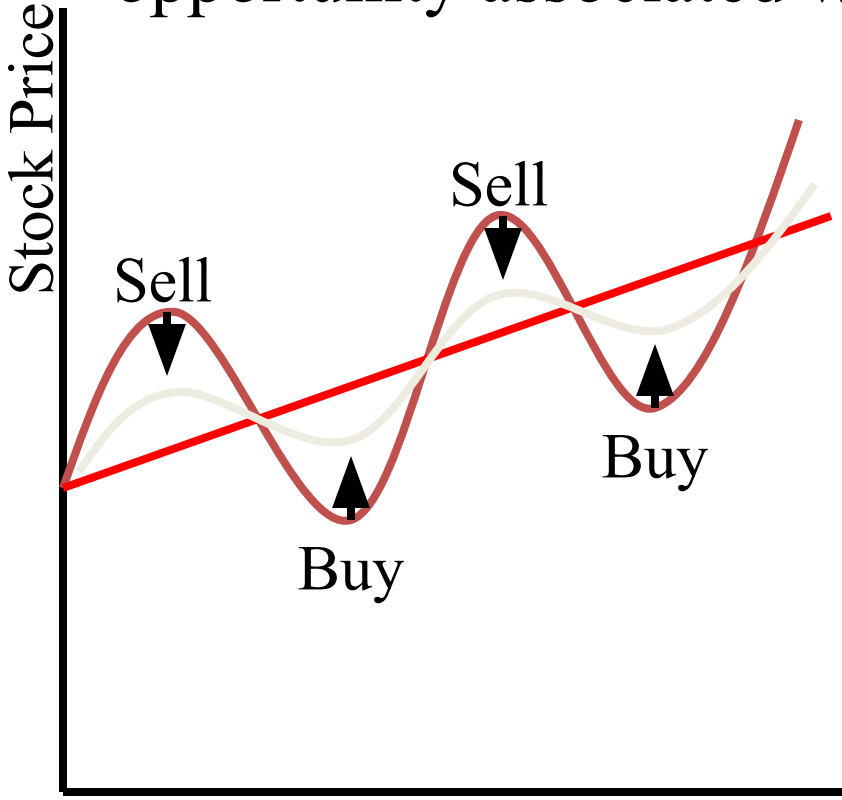
- Security prices reflect all information found in past prices and volume.
- If the weak form of market efficiency holds, then technical analysis is of no value.
- Often weak-form efficiency is represented as

$$P_t = P_{t\text{-}1} + \text{Expected return} + \text{random error}_t$$

- Since stock prices only respond to *new* information, which by definition arrives randomly, stock prices are said to follow a **random walk**.

Why Technical Analysis Fails

Investor behaviour 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.

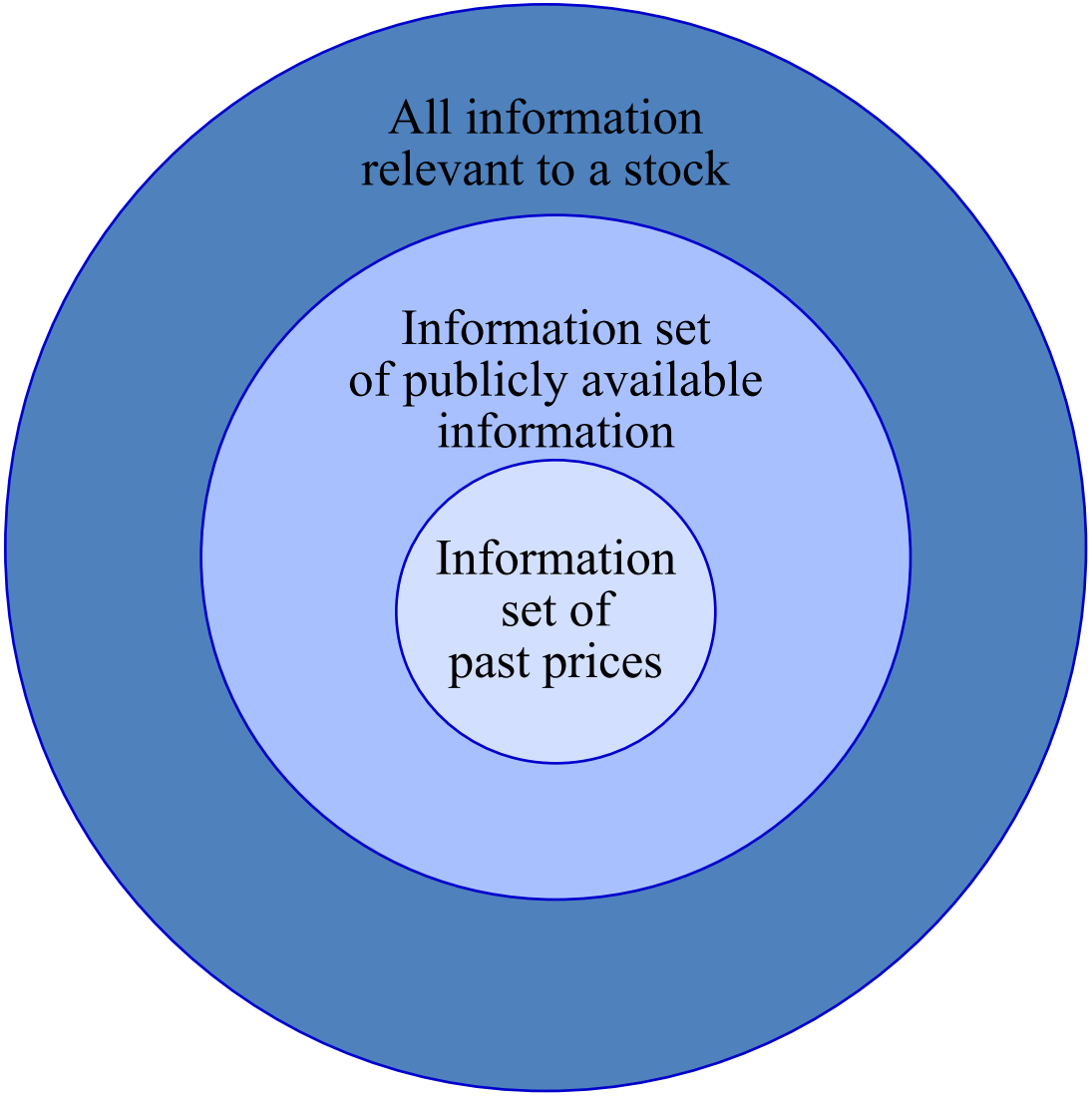
Semi-Strong Form Market Efficiency

- Security prices reflect all **publicly available** information.
- Publicly available information includes:
  - Historical price and volume information
  - Published accounting statements.
  - Information found in annual reports.

Strong Form Market Efficiency

- Security prices reflect all information—public and private.
- Strong form efficiency incorporates weak and semi-strong form efficiency.
- Strong form efficiency says that *anything* pertinent to the stock and known to at least one investor is already incorporated into the security's price.

Relationship among Three Different Information Sets



Some Common Misconceptions

- Much of the criticism of the EMH has been based on a misunderstanding of what the hypothesis says and does not say.

What the EMH Does and Does NOT Say

- Investors can throw darts to select stocks.
  - This is almost, but not quite, true.
  - An investor must still decide how risky a portfolio he wants based on risk aversion and the level of expected return.
- Prices are random or uncaused.
  - Prices reflect information.
  - The price CHANGE is driven by *new* information, which by definition arrives randomly.
  - Therefore, financial managers cannot “time” stock and bond sales.

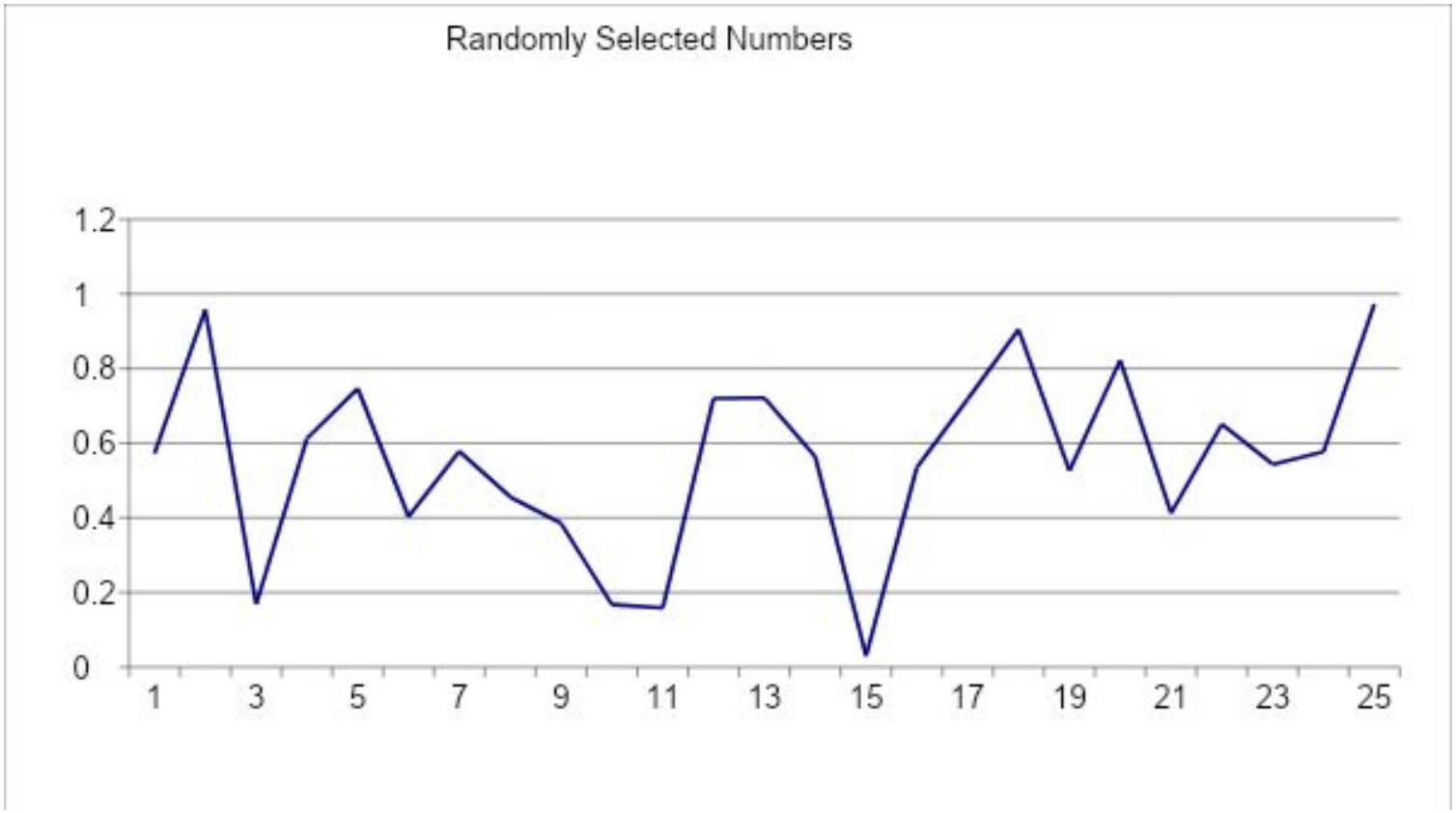
13.4 The Evidence

- The record on the EMH is extensive, and in large measure it is reassuring to advocates of the efficiency of markets.
- Studies fall into three broad categories:
  1. Are changes in stock prices random? Are there profitable “trading rules”?
  2. Event studies: does the market quickly and accurately respond to new information?
  3. The record of professionally managed investment firms.

Are Changes in Stock Prices Random?

- Can we really tell?
  - Many psychologists and statisticians believe that most people want to see patterns even when faced with pure randomness.
  - People claiming to see patterns in stock price movements are probably seeing optical illusions.
- A matter of degree
  - Even if we can spot patterns, we need to have returns that beat our transactions costs.
- Random stock price changes support weak-form efficiency.

What Pattern Do You See?



Double-click on this Excel chart to see a different random series. With different patterns, you may believe that you can predict the next value in the series—even though you *know* it is random.

Event Studies: How Tests Are Structured

- Event studies are one type of test of the semi-strong form of market efficiency.
  - ✔ This form of the EMH implies that prices should reflect all publicly available information.
- To test this, event studies examine prices and returns over time—particularly around the arrival of new information.
- Test for evidence of underreaction, overreaction, early reaction, delayed reaction around the event.

How Tests Are Structured (cont.)

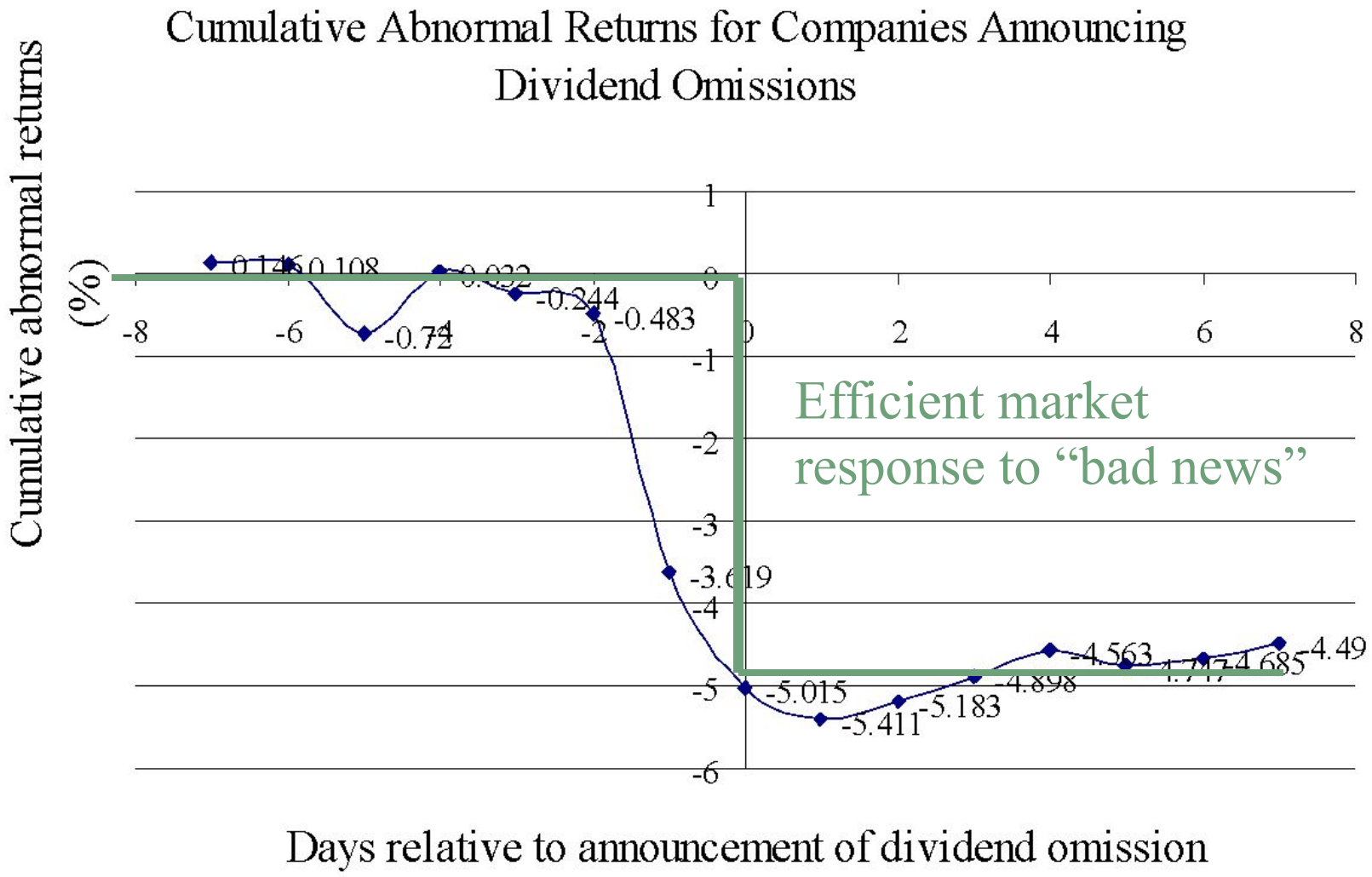
- Returns are adjusted to determine if they are *abnormal* by taking into account what the rest of the market did that day.
- The *Abnormal Return* on a given stock for a particular day can be calculated by subtracting the market's return on the same day (R_M) from the actual return (*R)* on the stock for that day:

$$AR = R - R_m$$

- The abnormal return can be calculated using the Market Model approach:

$$AR = R - (\alpha + \beta R_m)$$

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)

Event Study Results

- Over the years, event study methodology has been applied to a large number of events including:
  - Dividend increases and decreases
  - Earnings announcements
  - Mergers
  - Capital spending
  - New issues of stock
- The studies generally support the view that the market is semistrong-form efficient.
- In fact, the studies suggest that markets may even have some foresight into the future—in other words, news tends to leak out in advance of public announcements.

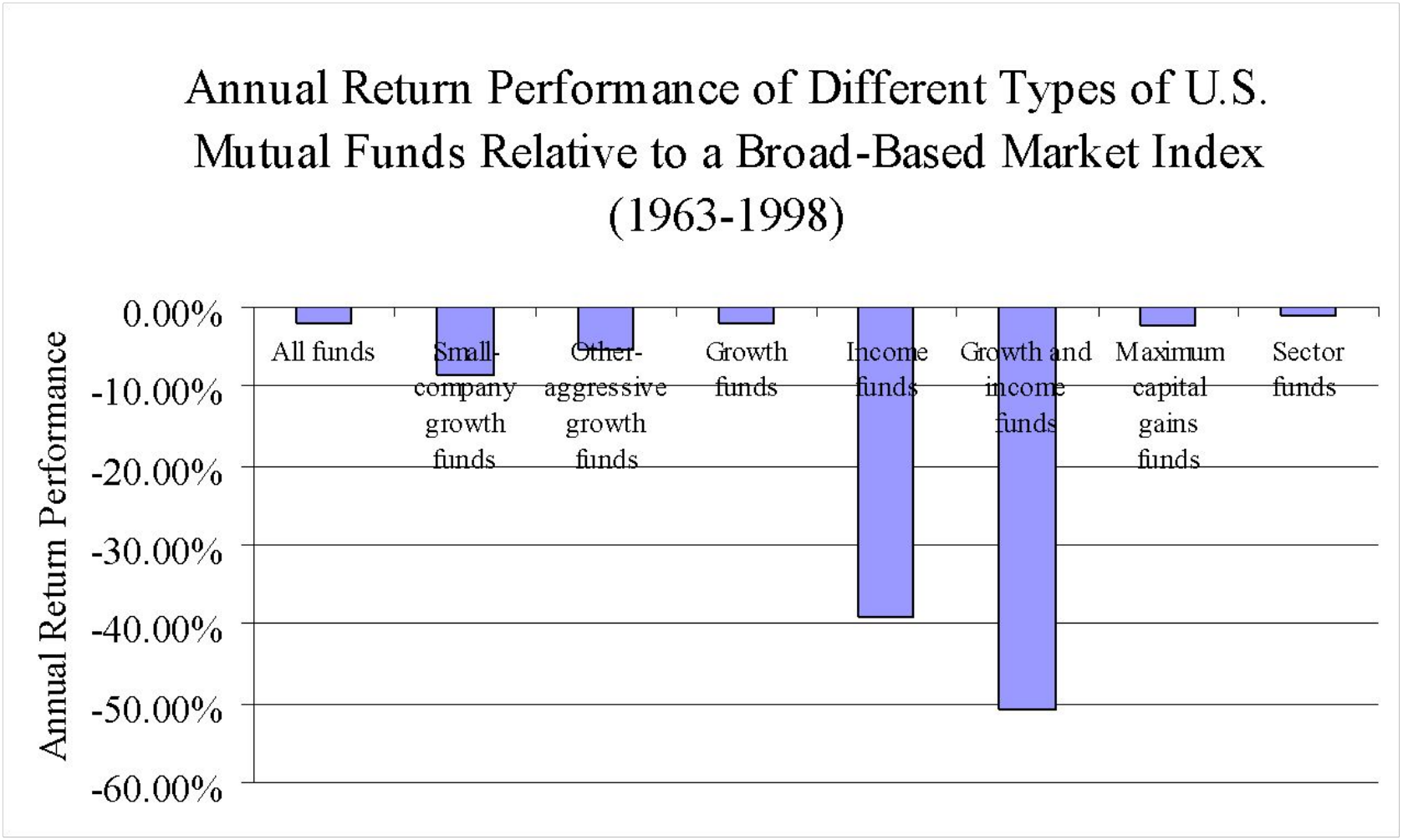
Issues in Examining the Results

- Magnitude Issue
- Selection Bias Issue
- Lucky Event Issue
- Possible Model Misspecification

The Record of Mutual Funds

- If the market is semistrong-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, "Evaluating and Investing in Equity Mutual Funds," unpublished paper, Graduate School of Business, University of Chicago (March 2000).

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.

Views Contrary to Market Efficiency

- Stock Market Crash of 1987
  - The NYSE dropped between 20-percent and 25-percent and the TSE dropped by more than 11-percent on a Monday following a weekend during which little surprising information was released.
- Temporal Anomalies
  - Turn of the year, —month, —week.
  - For large-capitalization Canadian stocks there is no longer a day-of-the week effect.
- Speculative Bubbles
  - Sometimes a crowd of investors can behave as a single squirrel.

13.5 Implications 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.
- Firms should expect to receive the fair value for securities that they sell.
  - *Fair* means that the price they receive for the securities they issue is the present value.
  - Thus, valuable financing opportunities that arise from fooling investors are unavailable in efficient markets.

13.5 Implications for Corporate Finance

- The EMH has three implications for corporate finance:
  1. The price of a company's stock cannot be affected by a change in accounting.
  2. Financial managers cannot "time" issues of stocks and bonds using publicly available information.
  3. A firm can sell as many shares of stocks or bonds as it desires without depressing prices.
- There is conflicting empirical evidence on all three points.

Why Doesn't Everybody Believe the EMH?

- There are optical illusions, mirages, and apparent patterns in charts of stock market returns.
- The truth is less interesting.
- There is some evidence against market efficiency:
  - Seasonality
  - Small versus Large stocks
  - Value versus Growth stocks
- The tests of market efficiency are weak.

13.6 Summary and Conclusions

- An efficient market incorporates information in security prices.
- There are three forms of the EMH:
  - Weak-Form EMH
    Security prices reflect past price data.
  - Semistrong-Form EMH
    Security prices reflect publicly available information.
  - Strong-Form EMH
    Security prices reflect all information.
- There is abundant evidence for the first two forms of the EMH.