

Chapters 11 & 12

Market Efficiency and Behavioral Finance Discussion

Efficient Market Theory

- **Weak Form Efficiency**
 - **Market prices reflect all historical information.**
- **Semi-Strong Form Efficiency**
 - **Market prices reflect all publicly available information.**
- **Strong Form Efficiency**
 - **Market prices reflect all information, both public and private.**

Efficient Market Theory

- Fundamental Analysts
 - **Research the value of stocks using NPV and other measurements of cash flow.**
- Technical Analysts
 - **Forecast stock prices based on the fluctuations in historical prices.**

EMH and Competition

- **Stock prices fully and accurately reflect publicly available information.**
- **Once information becomes available, market participants analyze it.**
- **Competition assures prices reflect information.**

Competition as the Source of Efficiency

- What would happen if all investors believed that markets were efficient?
 - Investors would stop doing research (i.e., competing), and market efficiency would break down.
- Markets cannot be efficient unless investors act as though they are not.
- It seems reasonable, then, that markets are only **nearly efficient**.
 - Most stocks are correctly priced most of the time.
 - Some stocks are mis-priced some (or all?) of the time.

Efficient Market Theory – Explaining Market Crashes

1987 Stock Market Crash

$$PV(index)_{\text{precrash}} = \frac{Div}{r - g} = \frac{16.7}{.114 - .10} = 1193$$

$$PV(index)_{\text{postcrash}} = \frac{Div}{r - g} = \frac{16.7}{.114 - .096} = 928$$

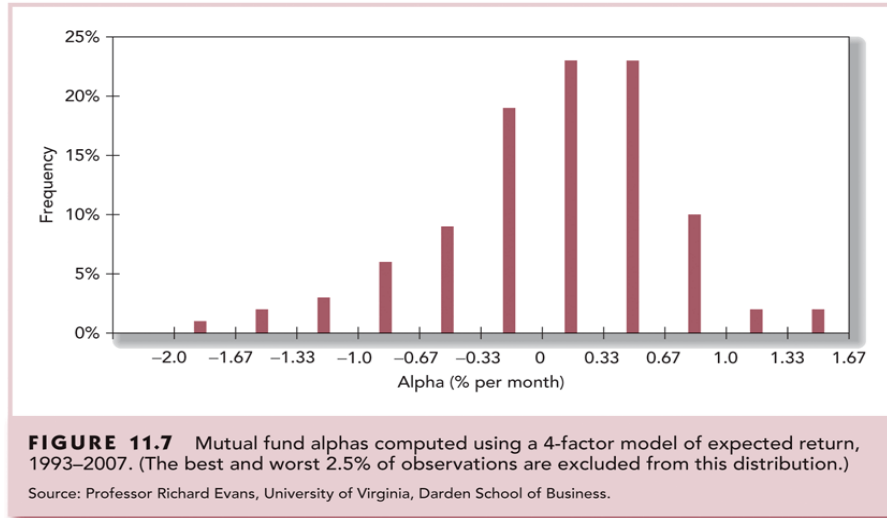
Implications of EMH for Investment Policy

- **Active vs. Passive Portfolio Management**
 - **Competition among investors ensures that casual efforts to pick stocks are not likely to pay off. Only serious analysis that produces differential insight will yield trading profits.**
 - **EMH implies that active management is a largely wasted effort.**
 - **Passive management attempts only to establish a well-diversified portfolio of securities without attempting to find under- or over-valued stocks. A passive strategy is essentially a buy-and-hold strategy. In an efficient market, it makes no sense to trade frequently, which generates additional transactions costs without increasing expected performance.**

Mutual Fund Performance

- **Some evidence of persistent positive and negative performance.**
- **Potential measurement error for benchmark returns.**
- **Superstar phenomenon**

Figure 11.7 Estimates of Individual Mutual Fund Alphas, 1972 - 1991



Implications of EMH for Investment Policy

- **The Role of Portfolio Management in an Efficient Market**
 - **Diversification to eliminate firm-unique risk**
 - **Tax considerations**
 - **Investor risk tolerance**

Event Studies

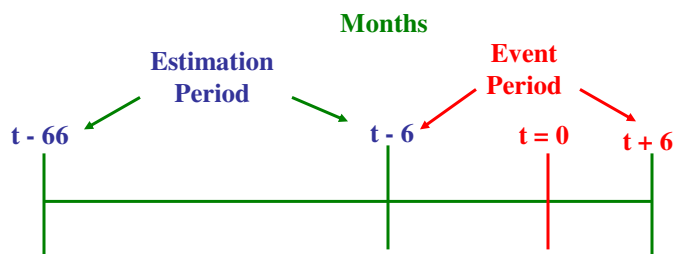
- If security prices reflect all currently available information, then price changes (and returns) must reflect new information. Therefore, one should be able to measure the economic importance of an event by examining stock returns during the period in which the event occurs.

- An event study is a statistical technique that allows one to measure the impact of an event on a firm's stock price. For example,
 - **Dividend changes, mergers and acquisitions, stock splits, etc.**

- An event's impact will be reflected in an **abnormal return**. To measure it, the stock's **normal return** due to overall market movements must be removed.

Event Studies

- A stock's abnormal return is calculated as a regression residual.



$$r_{it} = \hat{\alpha}_i + \hat{\beta}_i r_{Mt} + e_{it}$$

$$AR_{it} = e_{it} = r_{it} - \hat{\alpha}_i + \hat{\beta}_i r_{Mt}$$

Figure 11.1 Cumulative Abnormal Returns Before Takeover Attempts: Target Companies

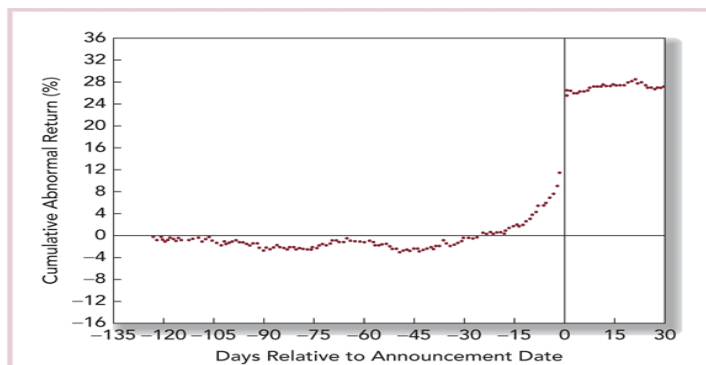


FIGURE 11.1 Cumulative abnormal returns before takeover attempts: Target companies

Source: Arthur Keown and John Pinkerton, "Merger Announcements and Insider Trading Activity," *Journal of Finance* 36 (September 1981). Reprinted by permission of the publisher, Blackwell Publishing, Inc.

Figure 11.2 Stock Price Reaction to CNBC Reports

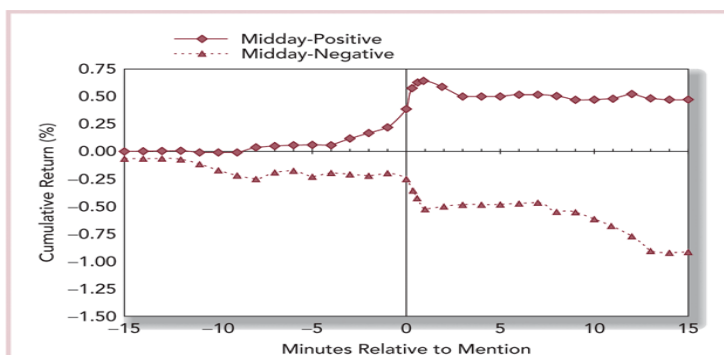


FIGURE 11.2 Stock price reaction to CNBC reports. The figure shows the reaction of stock prices to on-air stock reports during the "Midday Call" segment on CNBC. The chart plots cumulative returns beginning 15 minutes before the stock report.

Source: Reprinted from J. A. Busse and T. C. Green, "Market Efficiency in Real Time," *Journal of Financial Economics* 65 (2002), p. 422. Copyright 2002 with permission from Elsevier Science.

Anomalies

- Researchers have purported to find evidence against market efficiency
- Does this mean markets are inefficient or is the anomaly literature driven by data mining?
- A look at some of the findings

Figure 11.3 Average Annual Return for 10 Size-Based Portfolios, 1926 – 2006

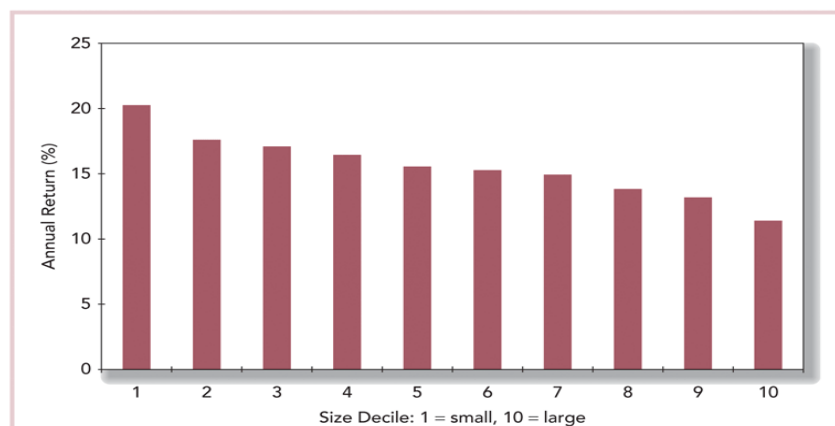


FIGURE 11.3 Average annual return for 10 size-based portfolios, 1926–2006

Source: Authors' calculations, using data obtained from Professor Ken French's data library at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Figure 11.4 Average Return as a Function of Book-To-Market Ratio, 1926–2006

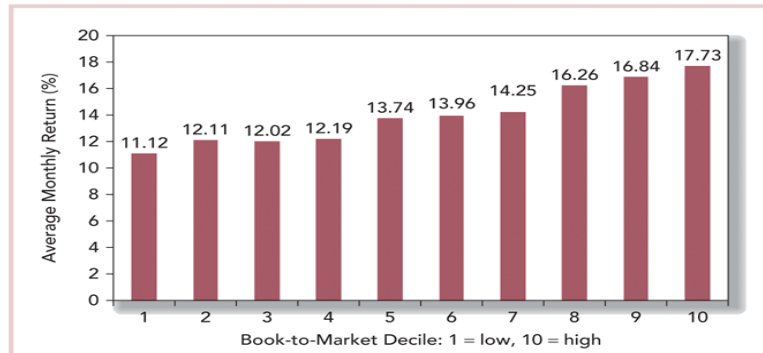


FIGURE 11.4 Average return as a function of book-to-market ratio, 1926–2006

Source: Authors' calculations, using data obtained from Professor Ken French's data library at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Figure 11.5 Cumulative Abnormal Returns in Response to Earnings Announcements

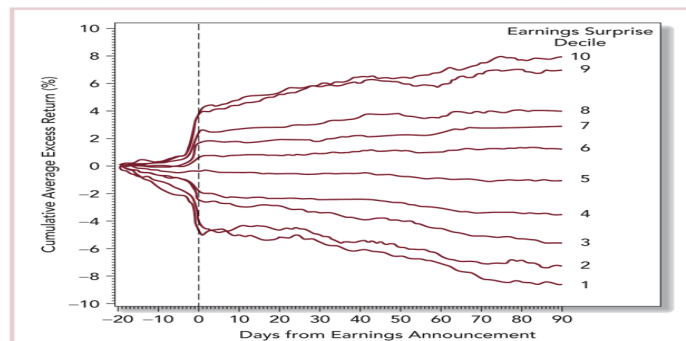


FIGURE 11.5 Cumulative abnormal returns in response to earnings announcements

Source: Reprinted from R.J. Rendleman Jr., C. P. Jones, and H. A. Latané, "Empirical Anomalies Based on Unexpected Earnings and the Importance of Risk Adjustments," *Journal of Financial Economics* 10 (1982), pp. 269–287. Copyright 1982 with permission from Elsevier Science.

Behavioral Finance

- Financial theory ignores how “real investors” make decisions.
- Are investors always rational?
- If not, can irrational investors impact market prices?
- Can we profit from irrational investors?
- Behavioral Explanations
 - Information Processing Errors
 - Behavioral Biases
 - Limits to Arbitrage

Information Processing

- Forecasting Errors
 - People give too much weight to recent experience compared to prior beliefs when making forecasts. In addition, people tend to make forecasts that are too extreme given the uncertainty inherent in their information.
- Overconfidence
 - People tend to overestimate the precisions of their beliefs or forecasts.
- Conservatism
 - People are too slow in updating their beliefs in response to recent evidence.
- Sample Neglect and Representativeness
 - People do not take into account the size of a sample when making decisions.

Behavioral Biases

- **Framing**
 - Decisions can be affected by how choices are framed.
- **Mental Accounting**
 - Specific form of framing in which people segregate certain decisions.
- **Regret Avoidance**
 - People who make decisions that turn out badly have more regret when that decision was more unconventional.
- **Prospect Theory**
 - A framework for the way people make decisions under risk.

Limits to Arbitrage

- Behavioral economists argue that several factors limit the ability to profit from irrational investors.
 - **Fundamental Risk**
 - **Implementation Costs**
 - **Model Risk**