Goals for Topic 5

Evaluate the three forms of market efficiency and understand their implications for
• Asset management
• Managerial policy

Appreciate how event studies are done and how to use the results
• To look for violations of market efficiency
• To gauge the market response to corporate policy changes
Outline of Topics

- Weak form efficiency
- Semi-strong form efficiency
- Event studies
- Strong form efficiency
- Summary

I. Weak form efficiency

Markets are “weak form efficient” if investors cannot systematically make abnormal returns by studying the behavior of past prices.
Weak form efficiency (continued)

Technical analysis focuses on the behavior of past prices.

1. **Difficulty**: It is easy to look for patterns, so regularities are quickly exploited.

2. **Examples**: Slow dissemination of information, “Overreaction”
The overwhelming evidence in favor of weak form efficiency is related to the fact that stock prices follow a "random walk" (Bachelier, 1900).

\[ E(P_{t+1}) = P_t (1+r) \]

\[ P_{t+1} - E(P_{t+1}) = \epsilon_{t+1} \] = error in price prediction

The error in price prediction is unpredictable

\[ P_{t+1} = P_t (1+r) + \epsilon_{t+1} \]

So, stock prices grow at the risk-adjusted discount rate, r, subject to unpredictable realizations of the error, \( \epsilon \).
II. Semi-strong form efficiency

A. Markets are “semi-strong form” efficient if investors can’t make abnormal returns using publicly available information.

B. Overall evidence is in favor of semi-strong form efficiency.

C. Fundamental analysis focuses on information: Looking for value based on economic fundamentals (analyze strength of management, expected cashflows, risk, accounting data, etc.)

Can there be a return on fundamental analysis if markets are semi-strong form efficient?
D. Consider the role of Mutual Funds

1. How should we evaluate their performance?

   • Collect history of fund returns, investments, and costs
   • Compare returns to a benchmark (e.g. CAPM prediction of return)
   • Consider costs

The results of an SEC study concluded:

• Large funds don’t outperform small funds
• Load funds don’t outperform no load funds
• Actively managed funds did no better than passive funds
• One factor made a significant difference: TURNOVER

_A 10% increase in the rate of turnover reduced performance by .3% to .6% per year._
III. Event Studies

Event studies examine the history of abnormal returns to assess market reaction to corporate events.

- This is a scientific (rather than anecdotal) approach because it looks across many events, reducing noise.
- This is valuable information for managers considering the likely effect of a policy announcement.

Example: Firms that become takeover targets often have a further price rise after the initial bid, since higher bids often follow.

Is it a good strategy to buy firms when it is announced that they are takeover targets?
1. Event study approach to answering this question:

a) Get returns history for firms experiencing the event
b) Find expected returns based on the CAPM
c) Calculate abnormal returns for days around the event:
   \[ R_{it} = a_i + b_i R_{mt} + e_{it} \]
d) Find average abnormal returns across firms
   \[ AR_i = \frac{\sum_{t=1}^{N} e_{it}}{N} \]
e) Find cumulative abnormal returns by adding up the average abnormal returns over time.
Second-hand Information

• Analysts publish recommendations in “Heard on the Street” in WSJ
• Clients have access to the information first
• Data on 902 recommendations (1986-88)
• Plot CAR around the publication dates

CAR before and after publication of a positive recommendation
IV. Strong form efficiency

- The market is strong-form efficient if all information is reflected in prices. This implies that people cannot make abnormal returns even with private information.

- Evidence? Study of trading by insiders suggests that strong-form efficiency does not hold.
V. Summary of Market Efficiency

- The weight of empirical evidence points to the semi-strong form of market efficiency.

- This implies that investors quickly make use of public information, so it is extremely difficult to make abnormal returns on publicly traded securities.

- Those with private information (e.g., insiders and sometimes market makers), however, are more likely to make abnormal returns.
Implications of market efficiency for financial managers:

• Trust market prices

• It’s tough to fool the market with accounting numbers: Cash is King

• The do-it-yourself option: Investors won’t pay much for things they can cheaply do themselves.

V. Summary

• Key Concepts
• Definitions
• Notation
Key Concepts

Since it is easy to look for patterns in past data, regularities are quickly exploited.

If investors quickly make use of public information, it is extremely difficult to make abnormal returns on publicly traded securities (semi-strong form efficiency).

Definitions

Markets are “weak form efficient” if investors cannot systematically make abnormal returns by studying the behavior of past prices.

Markets are “semi-strong form” efficient if investors can’t make abnormal returns using publicly available information.

Event studies examine the history of abnormal returns to assess market reaction to corporate events.

The market is strong-form efficient if all information is reflected in prices. This implies that people cannot make abnormal returns even with private information.
Next Time:

Options!