

**Kellogg School of Management  
Northwestern University**

**Turbocharging Your Investment Portfolio**

**Linda Vincent  
May 12, 2004**

# ***Efficient Markets Hypothesis***

- **Standard paradigm in finance and economics for thinking about stock market returns is the**

## **Efficient Markets Hypothesis (EMH)**

- **In summary, EMH holds that an investor cannot earn abnormal returns by trading in securities markets because security prices reflect all available information.**
- **That is, investors have access to, *and the ability*, to process all available information.**
- **Competition among investors ensures assets are properly priced.**

# ***Efficient Markets Hypothesis***

- **An implication of EMH is that a security's price is always equal to the present value of its future cash flows:**

$$P_0 = \sum_{t=1}^{\infty} \frac{E[CF_t]}{(1+r_t)^t}$$

- **If prices are set in this way, investors earn, on average, a return of  $r_t$  each year.**

# ***Capital Asset Pricing Model (CAPM)***

- **CAPM relies on efficient markets**

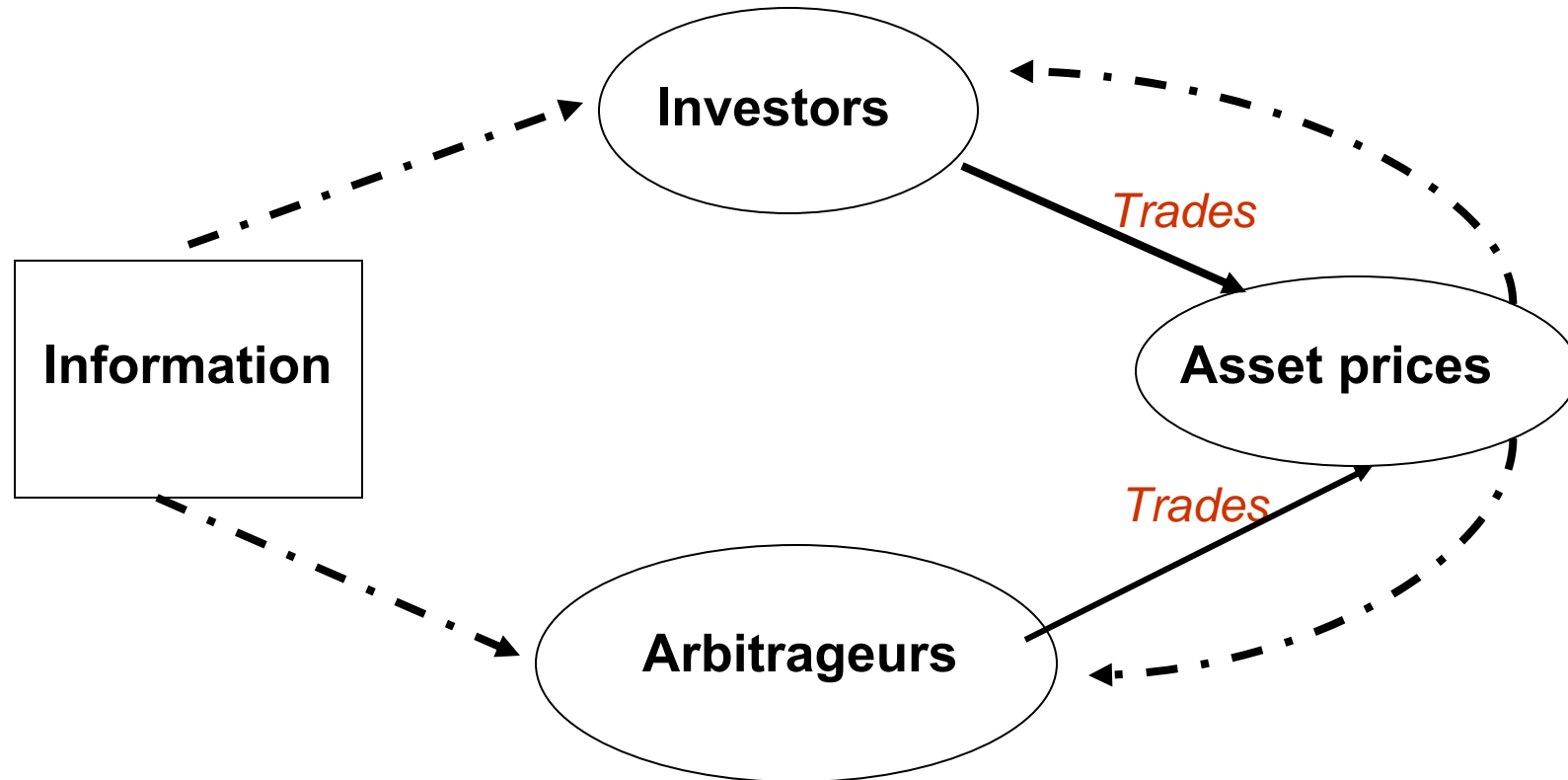
$$E[r_i] = r_F + \beta_i (E[R_M] - r_F)$$

- **Returns different from those predicted by CAPM are unexpected or “abnormal”.**
- **Events generating consistent abnormal returns referred to as “anomalies” (because inconsistent with EMH).**

## ***Goal: Abnormal Returns***

- **If all investors believed in EMH and behaved as passive price takers, how would information get impounded into price?**
- **In addition, recent academic evidence indicates that not all investors process information well.**
- **Standard response to this argument is that informed investors (arbitrageurs) force prices back to efficiency.**

# Information and trading flows



# ***Goal: Abnormal Returns***

- **For this activity, the informed (or smart) investors (arbitrageurs) earn rents.**
- **Who are the informed (smart) and uninformed (not so smart) investors?**
  - **Each of us would like to earn the rents to expertise.**
  - **Most of us believe we can.**
  - **If this were so easy, you would not be attending this talk.**

# ***Goal: Abnormal Returns***

- **What is the evidence on how well information is incorporated into prices?**
  - **How fast is information impounded?**
  - **Do investors over-react or under-react to news?**
- **Can we exploit this evidence by constructing simple trading rules that yield abnormal (unexpected) returns?**
- **We have time to consider only a few examples of mispricing (anomalies).**

# Trading Strategies

- **Elements of a trading strategy**
  - Information used to generate the trading strategy:
    - Is publicly available
    - Is currently being under-used or over-used by investors
    - Will eventually be priced correctly by the market
  - Can be implemented in real time
  - Consistently yields abnormal returns *after controlling for risk*
  - Profitable after transactions costs
- **Must determine length of holding period**
  - When does stock revert to *intrinsic value*?

# Earnings Momentum Strategy

- **Post-earnings announcement drift (PEAD)**
  - **Take positions based on earnings announcements**
    - **Stock prices drift in the direction of the unexpected earnings news *after the announcement***
    - **Suggests investors *under-react* to information conveyed in earnings announcements**
      - **Buy stocks in top decile of unexpected earnings**
      - **Sell (short) stocks in bottom decile of unexpected earnings**
- ➔ **average abnormal return of 6% in three months**

# Earnings Momentum Strategy

POST-EARNINGS-ANNOUNCEMENT DRIFT 13

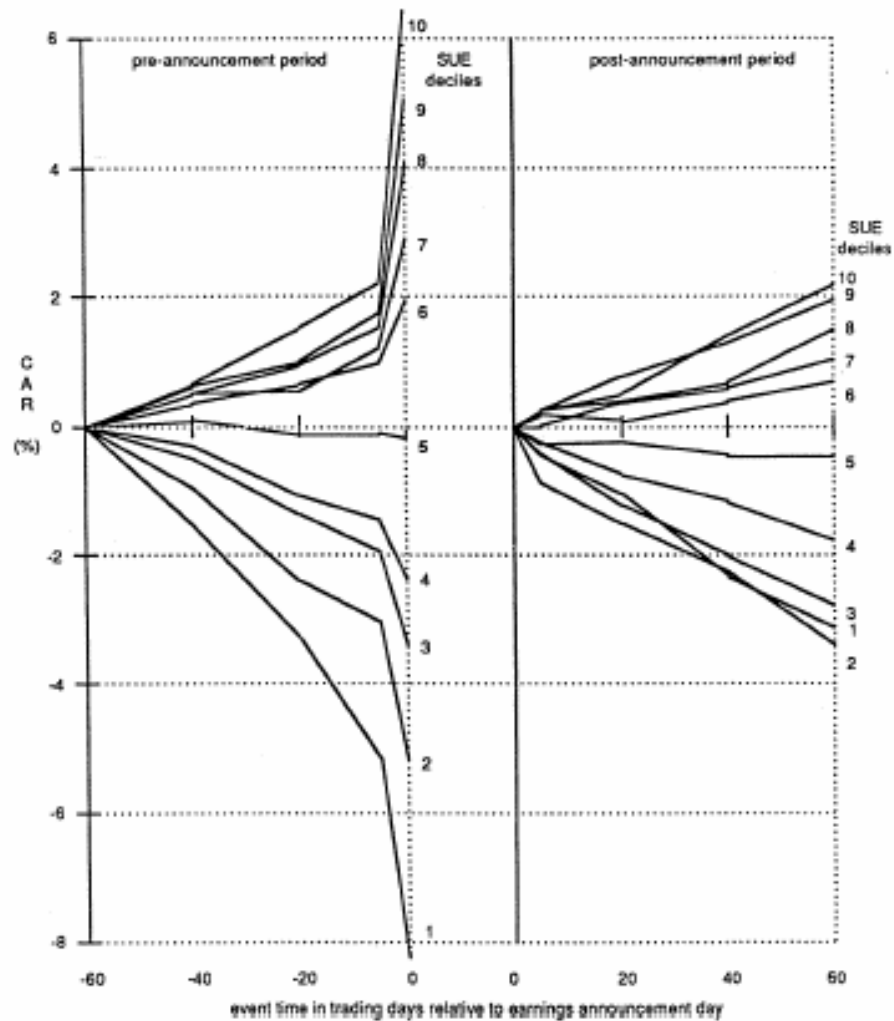


FIG. 4.—Cumulative abnormal returns (CARs) for SUE portfolios: small firms only.

# Accruals Strategy

- Do investors fixate on earnings?
- $\text{Accruals} = \Delta \text{ noncash current assets} - \Delta \text{ current liabilities} - \text{depreciation}$
- Accruals portion of earnings less persistent than cash portion
- Trading strategy:
  - Buy firms with low levels of accruals
  - Sell short firms with high levels of accruals
- Average **4.5%** abnormal return in three days around **subsequent** earnings announcement
- Positive abnormal returns in 28 of 30 years averaging **10.4%** in subsequent year

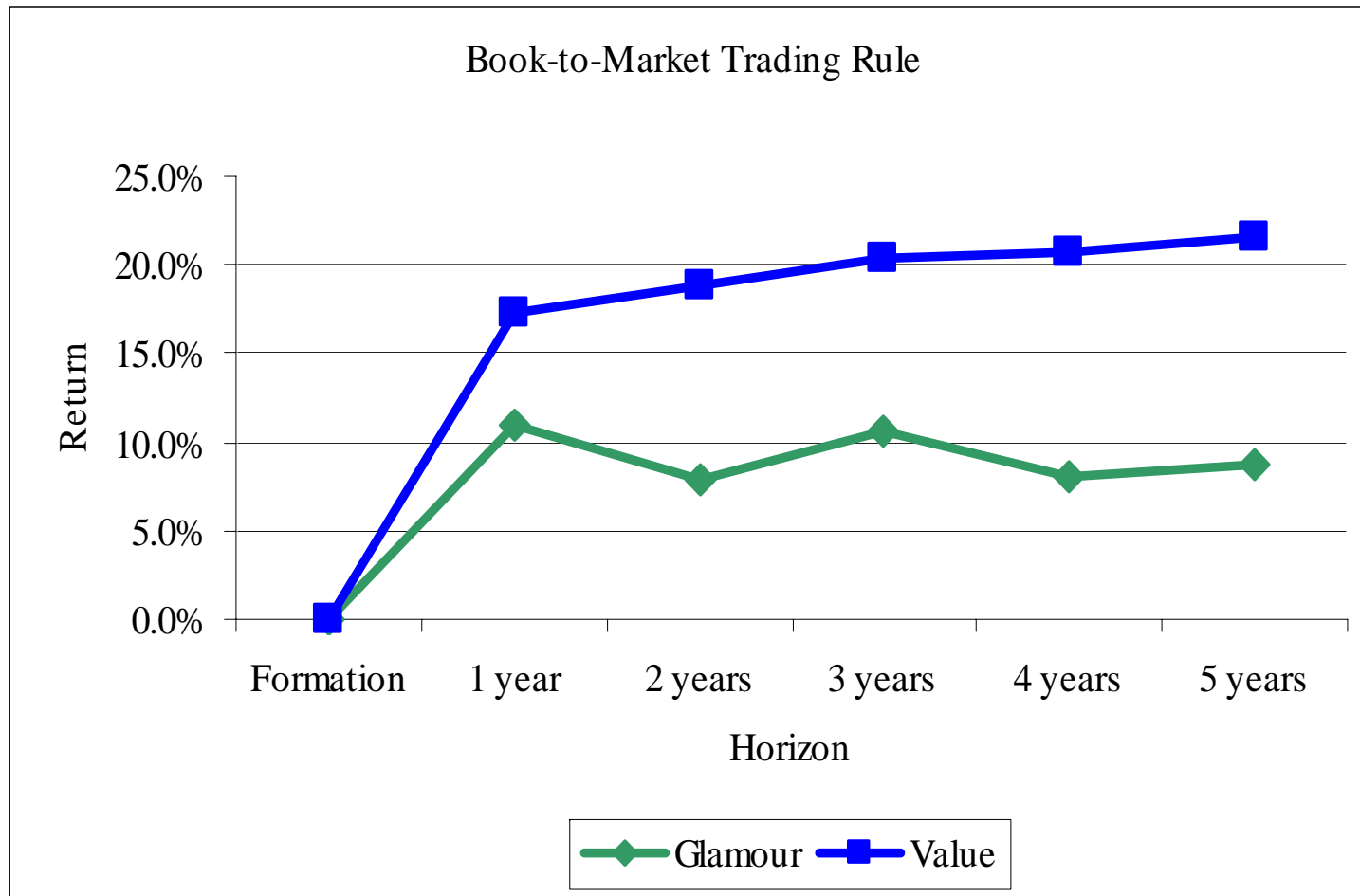
# *Price Momentum Strategy*

- **Momentum or continuation strategies**
  - Buy past winners (high returns)
  - Sell past losers (low returns)
  - Works best for 12 month period
  - Form portfolio based on past 6 months returns
    - Long top 10%
    - Short bottom 10%
  - Hold for six months
  - Abnormal return of **6%** (**12%** annualized)

# ***Contrarian (Reversal) Strategy***

- **Value versus glamour (growth)**
- **Value stocks – low market valuations relative to fundamentals**
  - High book to market
  - Buy value stocks
- **Growth (glamour) stocks – high market valuations relative to fundamentals**
  - Low book to market
  - Sell (short) glamour stocks
- **High (highest decile) book to market stocks outperform low (lowest decile) book to market stocks by average **10.5%** per year for five years.**

# Value and Glamour (Growth)



## ***Goal: Abnormal Returns***

- **Do we expect investment professionals to exploit these anomalies?**
  - **Actively managed mutual funds, on average, do not outperform the market index, especially after expenses.**
  - **And little evidence of persistence for those that do outperform in any given year.**
  - **Sell-side analysts recommendations, on average, earn no abnormal returns after transactions costs.**

# *Professionals' Stock Picks*

- **WSJ: analysts vs the dart board**
  - 1990 – 2002 (143 contests)
    - 87 for the pros, 56 for the darts
    - 77 for the pros, 66 for the DJIA

# ***Goal: Abnormal Returns***

- **Identify the information that is being mispriced**
  - **Assess how investors are misinterpreting the information**
    - **Under-reaction?**
    - **Over-reaction?**
  - **Determine how long it takes the market to correct**
  - **Construct trading rule**