Econ 219B
Psychology and Economics: Applications
Introduction to Empirical Problem Set

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1 Intro to Problem Set

- Problem set focused on financial markets
- Biases of investors and accountants
- Accounting — Information on company performance
  - accounting books
  - quarterly earnings announcement
- Two main focuses:

– Optimal accounting rules

– Stock price response to profitability information in accounting books

- What is right valuation of company?
  - Crucial to guarantee right allocation of capital
  - Denote $e_{t,k}$ earnings (profits) of company k in year t
  - Stock price = Discounted sum of future cash flows:

$$p_{t,k} = e_{t,k} + \frac{e_{t+1,k}}{1+r} + \frac{e_{t+2,k}}{(1+r)^2} + ...$$

  - Need forecasts of future profitability $e_{t,k}$

- Two main components:
  - Short-run earnings performance

– Long-run performance

– Analysts provide forecasts on both

- **Analysts.** Process information on companies and make it available (for a fee)
  - Sell-side. Work for brokerage firm (investment bank)
  - Buy-side. Work for mutual funds
  - Sell-side analysts:
    * more likely to have conflict of interest (Inv. Bank selling shares of target company)
    * data widely available (IBES, FirstCall)

- Analysts generate two main outputs:

  1. Earning forecasts $\hat{e}_{t,k}$
     - Dollar earning per share of company
     - Quarterly or annual
     - Forecast h years into the future: $h \simeq 3, 4$ years
  2. Long-term "growth rate" of earnings g_e

- Common forecasting model:

$$\begin{aligned}\hat{p}_{t,k} &= e_{t,k} + \frac{\hat{e}_{t+1,k}}{1+r} + \frac{\hat{e}_{t+2,k}}{(1+r)^2} + \ldots \\ &\quad + \sum_{t=0}^{\infty} \frac{1}{(1+r)^{h+t}} \hat{e}_{t+h,k} * g_e\end{aligned}$$

Company releases of information

- Each quarter: Announcement of accounting performance
  - Scheduled announcement, conference call
  - Release of accounting indicators
  - Special focus on earnings per share $e_{t,k}$
- Comparison of forecasted and realized earnings
- Measure of new information: earning surprise $e_{t,k} - \hat{e}_{t,k}$.
- Renormalize by price of share: $s_{t,k} = \left(e_{t,k} - \hat{e}_{t,k}\right) / p_{t,k}$

- Investors react to new information by updating stock price $p_{t,k}$

- **Problem set**

- Focus on response of stock prices to earning surprise

- Economic significance:
  - Processing of new information
    - Clean measure of information
    - Clean measure of response
  - Timing of release of information by company

- Identify in the data three anomalies:

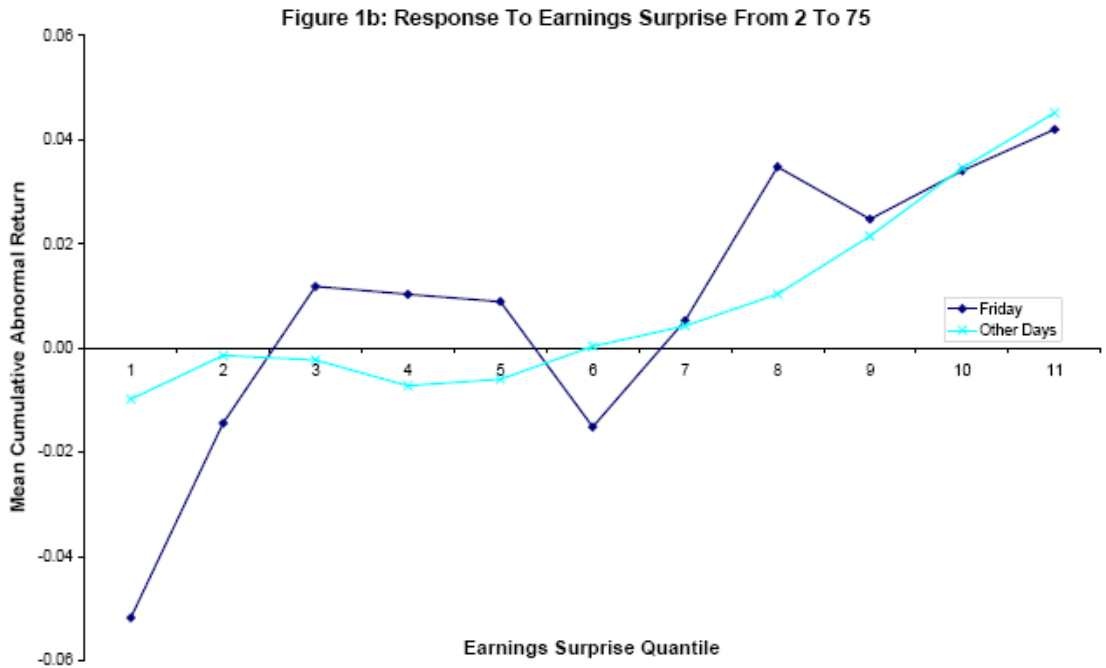
- **Anomaly 1. Post-Earnings Announcement Drift. (Chan, Jegadeesh, and Lakonishok, 1996; Bernard and Thomas, 1989).**
  - Announcements of good news in earnings $e_{t,k}$ are followed by higher returns over next 2-3 quarters
  - Arbitrage should eliminate this
  - Interpretation: Investors inattentive initially, news incorporated slowly over time

- Measure new information using earnings surprise $s_{t,k}$

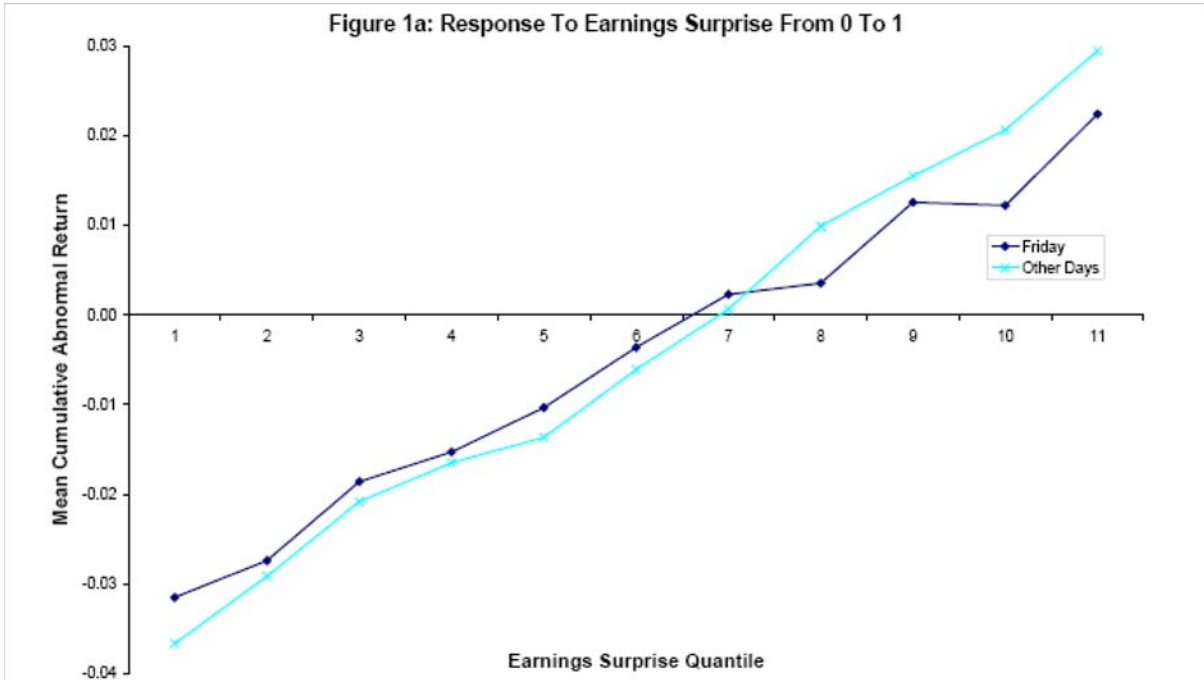
- Follow standard 'quantile' procedure: Divide into quantiles based on $s_{t,k}$

- Plot returns for each quantile

- Focus on light blue line for now (Figure from DellaVigna and Pollet, 2006)

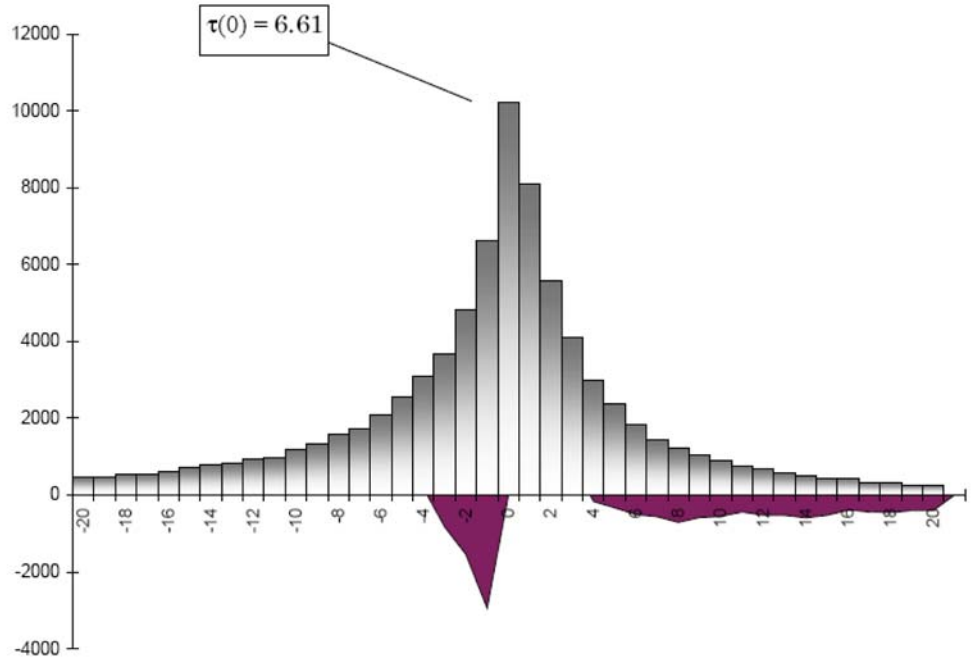


- **Anomaly 2. Less Immediate Response and more Drift when More distractions (DellaVigna-Pollet, forthc.; Hirshleifer-Lim-Teoh, 2007)**
  - Announcements on Friday (DVP) or with more competing news (HLT):
    * Drift stronger and Immediate response lower
    * Inattention: More distracted investors



- **Anomaly 3.** (Degeorge, Patel, and Zeckhauser, 1999)
  - CEOs shift the earnings so as to meet analyst expectations

Figure 6. Histogram of Forecast Error for Earnings Per Share: Exploring the threshold of "meet analysts' expectations"



- Similar result if earnings compared to earnings 4 quarters ago or compared to zero profits

- Interpretation:
  - Investors have 'bias': They penalize significantly companies that fail to meet thresholds
  - Managers cater to this bias by manipulating earnings