Econ 219B
Psychology and Economics: Applications
(Lecture 1)

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Outline

1. Who am I?

2. Who are you? (Prerequisites)

3. What is this course?

4. Getting started!
   Psychology and Economics by Field

5. Two Examples of Applied P&E (Good and Bad)

6. Present Bias — Status Quo Effect

1 Who am I?

Stefano DellaVigna

- Assistant Professor, Department of Economics
- Bocconi (Italy) undergraduate (Econ.), Harvard PhD (Econ.)
- Psychology and Economics, Applied Microeconomics, Behavioral Finance, Media
- Evans 515
- Oh Tu 5-6

2 Who are you?

- PhD student 2nd year and higher

- Graduate courses in
  - Econometrics
  - Micro Theory (Contract Theory, Game Theory)
  - Psychology and Economics – Theory (219A)

- Interest in
  - Psychology and Economics
  - Applied, empirical microeconomics (io, labor, public finance, finance)

3 What is this course?

- Syllabus

- Reading list:
  - photocopy of required (*) papers for students enrolled (courtesy of Judi Chan)
  - complete, updated list on course webpage

- Please email me (sdellavi@econ.berkeley.edu) for any issue with course

- Weekly homework assignment:
  - 8 one-page discussion reports
  - empirical problem set on stock response to earnings announcements or media data
- One class presentation
- Paper

- Deadlines:

  1. Homework Assignments: Tuesday by noon

  2. Presentations: 25 minutes

  3. Paper

     (a) Meet with me about your paper by 2/18

     (b) Brief summary of your research idea by 3/17 (2 pages, research question, data availability)

     (c) Paper due on 5/14

- Grading: 25% (5 best) written discussions, 20% problem set, 15% presentation, 40% paper

- (Free) Coffee after class

- Information sheet

4 Psychology and Economics by Field

- Protypical economist conception of human behavior (aka "Classical Model according to Matt Rabin"):

$$\max_{l \in L} U := \sum_{t=1}^{\infty} \delta^t \sum_{s \in S_t} p(s) u(\cdot, s, t)$$

- L is set of "life-time strategies"

- S_t is set of state spaces

- $p(s)$ are rational beliefs

- $\delta \in (0, 1)$ is time-consistent discount factor

- $u(\cdot, s, t)$ is true utility at time t in state s

- **Improving Psychological Realism**:

1. Present-Biased Preferences: time inconsistency β, δ

2. Reference Dependence: $u(\cdot, r)$ with r reference point

3. Narrow Framing: maximization set $\neq L$

4. Attention (cousin of Narrow Framing)

5. Social Preferences: $u(\cdot, \mathbf{x})$ where $\mathbf{x}$ represents allocation of others

6. Persuasion (cousin of social preferences)

7. Overconfidence: beliefs $\tilde{p}(s) \neq p$

8. Heterogeneity and Firm Reaction

- **Psychology and Economics by Field:**

1. Consumer Choice:
   (a) Time preferences (health clubs, credit cards)
   (b) Reference Dependence (housing purchases)
   (c) Persuasion (advertisement)

2. Public Finance:
   (a) Time preferences (addiction, taxes, retirement savings)
   (b) Social preferences (charitable contributions)
   (c) Narrow framing (flypaper effect, incidence of taxes)

(d) (Social welfare)

3. Environmental Economics:

   (a) Narrow Framing (WTA/WTP, value of a life)

4. Labor Economics — Development Economics:

   (a) Time preferences (job search)

   (b) Social learning (choice of job, choice of crops)

   (c) Social capital (trust)

5. Industrial organization:

   (a) Market Reaction

   (b) Time preferences (teaser rates, mail-in rebates)

   (c) Attention (complex products)

6. Political Economy:

   (a) Market Reaction (manipulation of hatred or attention)

   (b) Welfare Enhancement (SMT plan)

7. Asset pricing:

   (a) Overconfidence (overtrading)

   (b) Heterogeneity and Market Reaction (noise traders)

   (c) Attention (footnotes in accounting, demographics, large events)

8. Corporate finance:

   (a) Overconfidence of CEOs (investment, mergers, options)

   (b) Attention (media)

5 Two Examples of Applied P&E

5.1 Michael Rashes: MCI-MCIC

5.1.1 Facts

- See handout for description of companies.

- Different companies, similar ticker name

- Do investors confuse companies with similar names?

- If investors confuse companies, correlation in trading volumes

	MCI	**MCIC**
Full Name:	Massmutual Corporate Investors	MCI Communications
Industry:	Mutual Fund (closed end)	Telecommunications 2nd largest US long-distance phone company (before acquisition Worldcom)
Volume	4,100 trades per day (average)	4.1 million trades per day (average)
Return	0.078% per day (average)	0.087% per day (average)
	"Top MCI Volume Days" 10,000 to 59,200 trades	

- Table III.

- What if two stocks have similar underlying fundamentals?

- Table III. Check correlation of MCI with another telephone company.

- Table III, inclusion of AT&T. (Could also include other companies)

- Go further.

- Predict returns of smaller company with bigger company (Why?)

- Which assumptions do we need to make predictions about returns?

- Returns Regression:

$$r_{MCI,t} = \alpha_0 + \alpha_1 r_{MCIC,t} + \beta X_t + \varepsilon_t$$

- Table IV. Positive α_1.

- Difference between reaction to positive and negative news? Returns Regression:

- Asymmetry of arbitrage

- Returns Regression:

$$\begin{aligned} r_{MCI,t} &= \alpha_0 + \alpha_1 r_{MCIC,t} + \\ &\quad + \alpha_2 r_{MCIC,t} * \mathbf{1}\left(r_{MCIC,t} < 0\right) + \\ &\quad + \beta X_t + \varepsilon_t \end{aligned}$$

- Table IV. Negative α_2. Effect of arbitrage.

- Conclusions.

- Important deviation from standard model: confusion.

- Large effect of confused investors (noise traders):
  - Volume of MCI trades triples:
    - $=$ 5845 to 55045 "additional" trades
    - $=$ 140% to 1325% above MCI mean

- Positive correlation of returns despite arbitrage

- Biases matter in the market

5.1.2 Bad economics

1. Size of the effects. Are the effects large?

- Calibrate results relative to larger firm!

- "Conspicuously well-chosen example" (aka data-mining): fraction of large-firm investors act upon small firm.

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Full Name:	Massmutual Corporate Investors	MCI Communications
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Volume	4,100 trades per day (average)	4.1 million trades per day (average)
Return	0.078% per day (average)	0.087% per day (average)
	"Top MCI Volume Days" 10,000 to 59,200 trades	
	= 5845 to 55045 "additional" trades (above MCI mean)	
	= 140% - 1325% above MCI mean	**= 0.1% to 1.3% of MCIC mean**
	= 1.3 - 12.2 SDs above MCI mean	**= 0.001 – 0.01 MCIC-SDs**

	MCI	MCIC
	Daily Return Regressions (Table IV)	
	Size: ▪ Magnitude MCIC: 0.086 (t=2.28) ▪ Magnitude S&P Smallcap: 0.107 (t=2.03) ▪ Magnitude Lehman Long Bond Index: 0.091 (t=2.28)	
	Why higher correlation when good news?	
Good News	Noise trader buys MCI	
		Arbitrageur who owns MCI sells – **unlikely**
		Arbitrageur who does not own MCI tries to sell **– short-selling constraints**
Bad News	Noise trader who owns MCI tries to sell **– realizes mistake**	
	Noise trader who does not own MCI tries to sell **– short-selling constraints**	
		Arbitrageur buys MCI

→ limits to arbitrage
→ limits to noise-trading!

2. Are the effects significant?

- Standard errors count! (sometimes)

3. Confusion = mistake, no theory of human behavior behind.

- Where can apply same model?
- Sometimes: eBay bidding on misspelt names

4. Overblown conclusions:

   - "Small changes in sentiment affect stock prices significantly and persistently." Neither *significantly* nor *persistently* is obvious.

   - Significantly only if relative to small firm.

   - Persistently: *"These results are consistent with the ... evidence that abnormal returns due to investor confusion tend to be reversed within a short period of time .."*

5. Dangerous emphasis.

   - Emphasize data, size of effects, explanation

   - Do NOT emphasize irrationality, massive confusion, etc.

   - Do NOT pick up fights!

5.1.3 Good Economics

- Neat idea, easy to remember

- Allocation of cognitive resources:
  - costs of monitoring;
  - benefits of monitoring

- Heterogeneity: Noise traders and arbitrageurs

5.2 Huberman-Regev: Cancer Cure

5.2.1 Facts

- Stock market valuation of company EntreMed (biotech)

- Effect of news

November 28, 1997: *Nature* "prominently features;" *New York Times* reports on page A28

–> small jump from $11.875 to $15.25 (28%)

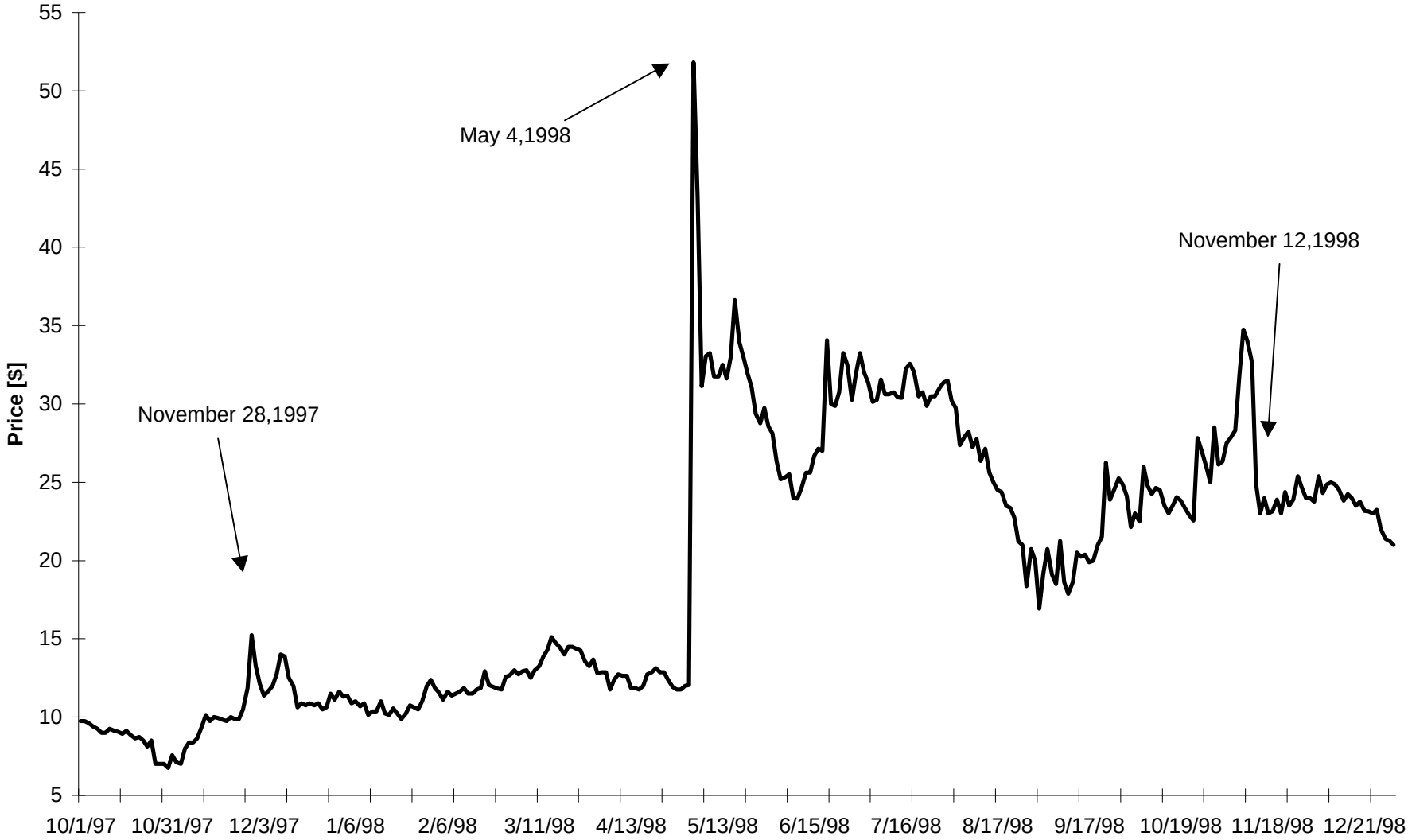
May 3, 1998: *New York Times* front page

–> big jump from $12.063 to $ 51.81 (330%)

November 12, 1998: *Wall Street Journal* front page about failed replication

–> plunge to $24.875 (24%)

Figure 5: ENMD Closing Prices and Trading Volume 10/1/97-12/30/98



5.2.2 Bad economics

- Case study

- Is this one observation?

5.2.3 Good economics

- Great idea: use media data.

- Wildly underappreciated source of data. Find new data sources!

- Large size of effects

- Limited attention: First order, generalizable phenomenon

6 Present Bias – Status Quo Effect

- Start from intertemporal preferences
- Three names, one object: Present bias – (quasi-)hyperbolic discounting – (β, δ) preferences
- Present bias + naivete' –> status quo bias (procrastination)
- (Next lecture: calibrated model)
- Status Quo in Retirement Savings (Madrian and Shea, 2001)

- Single most important piece of field evidence on P&E
- Health Care company
- Switch of 401(k) plan features for new hires (Table 1)

- OLD Cohort hired 4/1/96-3/31/97:
  - default: no enrollment
  - 1-year wait period for eligibility

- WINDOW Cohort hired 4/1/97-3/31/98:
  - default: no enrollment
  - wait period for eligibility till 4/1/98

- NEW Cohort hired 4/1/98-3/31/99:
  - default: enrollment in 3 percent money market fund
  - immediate eligibility

- Summary Stats. Different cohorts not too different from each other (Table 3)

- Results:

1. Partecipation rates in 401(k) by June 30, 1999 (Figure 1 and Table 4):
    - OLD: 57%
    - WINDOW: 49%
    - NEW: 86%

2. Contribution level (Figures 2b and 2c):
    - WINDOW: 63% are at 0 percent, 4% at 3 percent

- NEW: 65% are at defaut (3 percent)

3. Allocation of funds in stocks (Figure 3):
    - OLD: 75%
    - WINDOW: 73%
    - NEW: 16%

- Results equally strong with controls (Table 6)
- Results replicated in samples of other companies (Choi et al., 2002)

- Interpretation:
  - Status-quo
  - Power of suggestion
- Can status-quo effect be rational?
- Hard sell: large magnitudes, opportunity of social learning, persistent effect
- Present-Bias + (Partial) Naivete –> Status-quo effect
- Next lecture!