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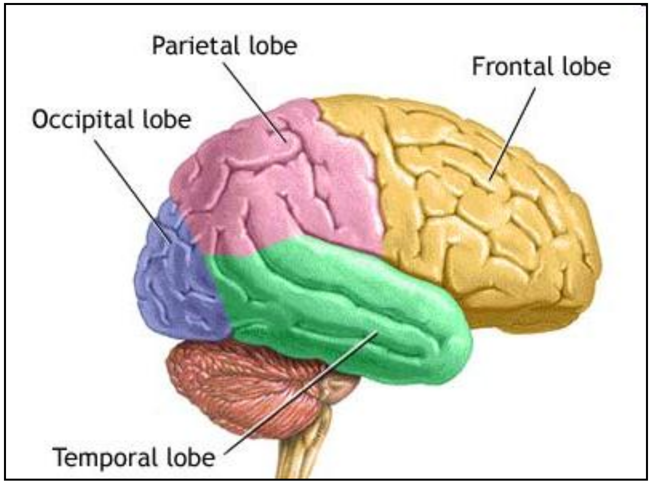


Behavioral Finance

Why do financial advisors exist?

- Know active stock picking rarely produces winners
  - Efficient markets tells us information immediately is reflected in prices
- If buy baskets/indices and dollar cost average can avoid market timing and active management costs
- Just an issue of portfolio mix
  - % stocks, bonds, etc
- Not that hard to learn or do own research
  - Are people that lazy? Or dumb?
  - If so, why do so many high-income professionals in finance use advisors?

People need help to make decisions

- Procrastinate
- Have information but don’t act on it
- Self-control – cannot resist spending

- Sophisticated investors knows his/her limitations
  - Needs external controls / constraint

Traditional vs. Behavioral

- Traditional
  - Rational
    - Fully informed
    - Make Choices Consistent with Expected Utility

- Behavioral
  - Some people, some times are not fully rational by the classically rational actor utility model of economics

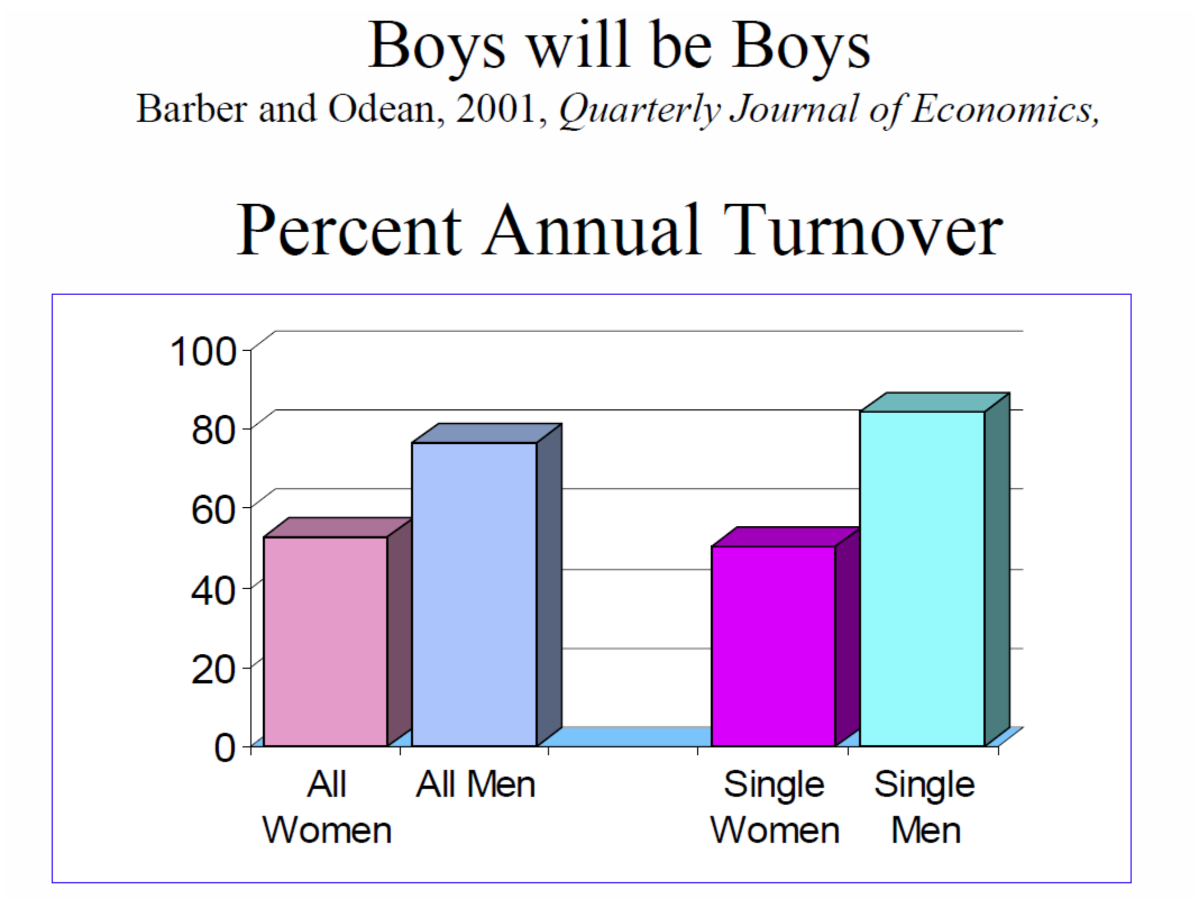
Behavioral finance

- Bridge the gap between classical economics and psychology
- Individual behavior systematically show psychological patterns
  - Overconfidence
  - Anchor too low/high and too slow to adjust
  - Frame losses as worse than relative gains; Valued more highly if owned
  - Chase Trends; Overwhelmed by choice
  - Lack of self-control; Trade at wrong time; Emotional investing

- Markets can still be rational when investors are individually irrational.
  - But that does not mean individuals don’t make major mistakes!

Overconfidence

- Study of men and women investment accounts
  - All had negative returns after trading; men 2xs worse than women
  - B/c males traded too much



Heuristics (Cognitive Shortcuts)

Strategies decision makers use when faced with decisions, that involve uncertainty:

1. Representativeness
   - People tend to infer that a single observation is representative of the entire population
     - Sample Size Neglect in Learning Distribution (6 Tosses vs. 1000 Tosses)
     - Gambler's Fallacy - Base Rates are Under-Emphasized Relative to Evidence
     - Judgment based on similarity. "Patterns in random sequences".

2. Saliency or Availability**:** "familiarity breeds investment".

   - People tend to over-estimate probabilities of a low frequency event if they have recently heard such an event has occurred

3. Prospect Theory
   - Investors more risk-adverse in domain of losses than gains

Prospect Theory

- Proposed by two psychologists: Daniel Kahneman (won Nobel for Economics 2002) and Amos Tversky
- Gambles are evaluated relative to a reference point.
  - Decision maker analyzes "gains" and "losses" differently.
  - Anchoring
    - Initial Arbitrary Value and Make Adjustments
- Incremental value of a loss is larger than that of a loss.

  "the hurt of a $1000 loss is more painful than the benefit of a $1000 gain".

Examples of Prospect Theory

- Have \$300 ("Initial endowment").
- Consider a choice between:
  - a sure gain of \$100
  - a 50% chance to gain \$200, a 50% chance to gain \$0.

- Have \$500. Consider a choice between:
  - a sure <u>loss</u> of \$100
  - a 50% chance to <u>lose</u> \$200, a 50% chance to <u>lose</u> \$0.

- Case 1: 72% chose option 1, 28% chose option 2.
  $\Rightarrow$ Framed as a gain: decision maker is risk averse.

- Case 2: 36% chose option 1, 64% chose option 2.
  $\Rightarrow$ Framed as a loss: decision maker is risk seeking.

More Systematic Behaviors

- **Regret Aversion**
  - anticipation of a future regret can influence current decision.
- **Disposition Effect**
  - Hold losers too long and sell winners too early
  - Status Quo effect – inertia
  - Endowment effect – value owned item more
- **Belief Perseverance**
    - Different search & treatment of contradictory information
- **Mental Accounting**
  - "Found money" effect
- **Self-attribution bias**
  - Successes due to talent but failure due to bad luck

Fashions and Fads

- Herding: may select stocks that other investors select to avoid "falling behind"
  - Socionomics: People are influenced by each other.
  - Herding behavior: "safety-in-numbers"
    - Subjective, unconscious, pre-rational impulses
    - Rationalize mood-induced moves
    - 'Wise' crowds become foolish – especially as become more uniform
- Informational Cascades & Positive Feedback
  - Example: excessive demand for internet IPOs.
    - Extremely high opening day returns.
  - Hindsight Bias
    - "of course Google was a good buy in 2002"

Emotion

- Visceral – anger, jealousy, etc
- Mild mood or affect
  - Positive – negative
  - Anxious
  - Hopeful

- Change self regulation and use of information
- Sunny or Rainy Day
  - Related to market returns?

Satisficing

- We are boundedly rational
  - Not out to maximize every decision
  - “Good enough” not the “best” or optimal

- People are ok with doing average
  - Not out to always beat the average
    - Works in favor or many investment strategies

- When faced with a complex or difficult decisions tend to use two simple heuristics
    - Keep things as they are (via inertia)   OR
    - Put the decision off (via procrastination)

Conflict and the status quo

Proliferation of Choice

Shoppers in upscale grocery store encounter tasting booths for jams:

6 jams: (40% stopped); **30%** bought

vs.

24 jams: (60% stopped); **3%** bought

(Iyenger & Lepper, 2000; B. Schwarz, 2000)

401(k) options: For every 10-option increase, individuals' participation probability declines by ~ 2%

(Iyengar & Jiang, 2005)

Self Control

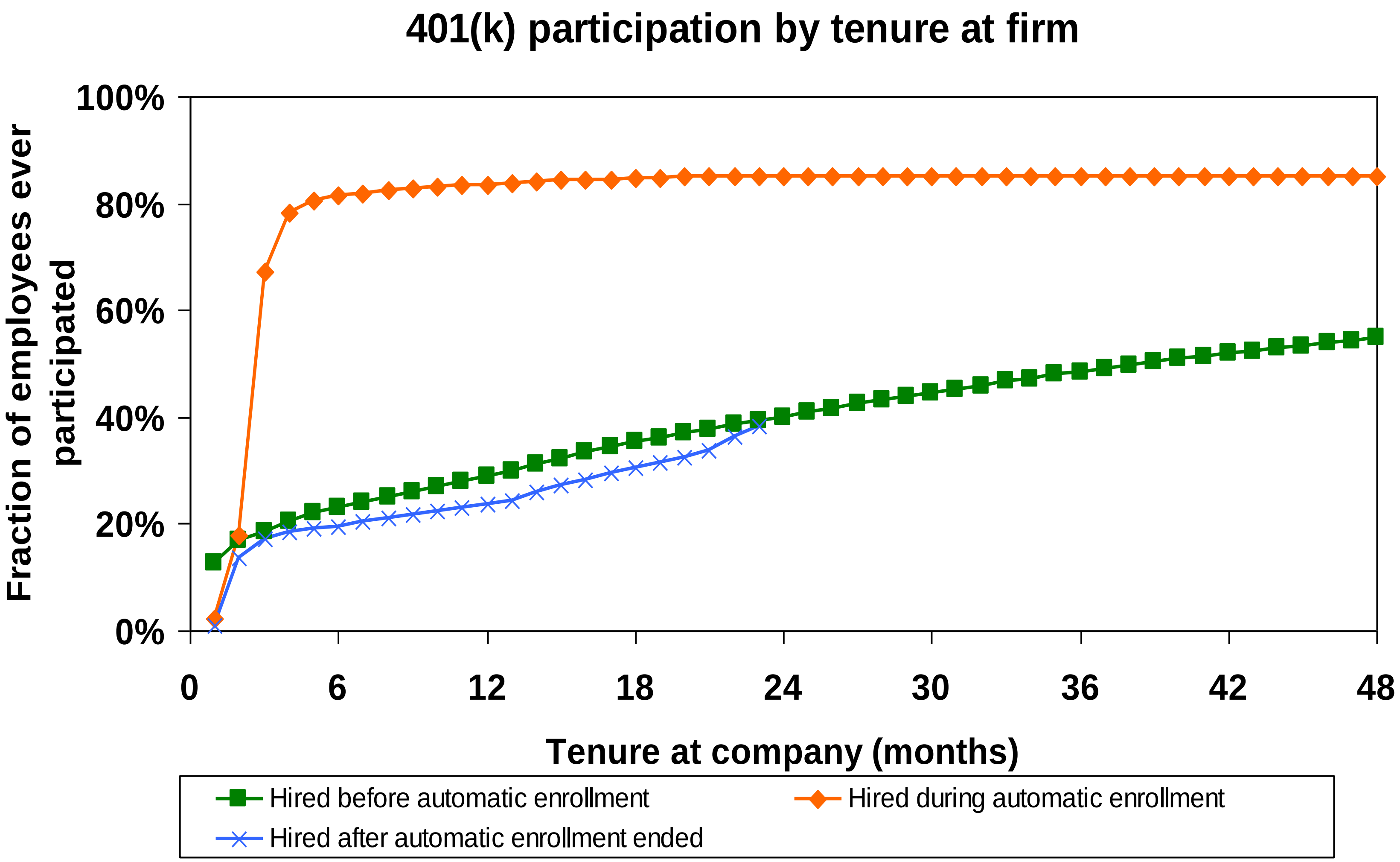
- Spend / consume too much now
- Fail to save for future
  - Even though you know "future you" wants to "present you" save – "present you" fails to do it
    - "hyperbolic discounting" rate – not consistent over time/selves
    - sophisticate: someone who understands his irrationality and builds systems to cope with it
      - Automatic deposit
      - Penalty for withdrawal
  - Save More Tomorrow (use mental accounting to advantage)
    - Agree this year to save next year
    - Agree to save portions of future raises
  - Why do people get $3000 tax refunds?

What can we do?

- Paying employees to save:
  – matches don’t work very well
- Educating investors:
  – financial education (alone) doesn’t work
  – Has some effects but not enough
    - A complement to other efforts

- Change defaults / Re-design processes

Make Savings a Default Choice



Madrian and Shea (2001)
Choi, Laibson, Madrian, Metrick (2004)

Decision	Typical Default	Automatic Default
Participation	Join – if you like	You’re enrolled
Investments	Default option is a fixed or money market	Default option is a balanced fund, suited to your age
Retirement	Here’s a lump sum	Here’s help balancing the benefits of lump sum with an annuity with guaranteed payments
Target Demographic	Active decision-makers and planners	Reluctant savers and avoiders

Source: The Vanguard Group, 2004

Hand Holding

- Markets down
  - Fear leads to selling at worst time
  - Start to question strategies
    - Buy and hold
    - Dollar cost indexing
    - Index funds
  - Having an external constraint helps
    - Stick to the plan
    - Make decisions public
      - Key role of investment advisor

Behavioral Financial Planning

- Trusted advisor
  – Issues maybe very simple; not technical
- Financial therapy
  – People want to tell their story
- Self Control and discipline
  – Keeping promises and reaching goals
- Coaching
  – Self-actuated goals & performance improvement