

Lecture 6

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A standard problem in economics:

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- ▶ Every agent's income y is uncertain (may become unemployed tomorrow, etc).

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What are the behavioral assumptions we have made?

Follows Dellavigna (2009)

Standard economic theory typically assumes the following behavioral model:

- ▶ Individuals act in their own benefit consistently across time (utility maximization).
- ▶ Individuals use the information available to them and process it correctly (rational expectations).

These assumptions are strong, but they make problems tractable and provide a reference point. To paraphrase:

Rational people are all alike, every irrational person is irrational in his/her own way.

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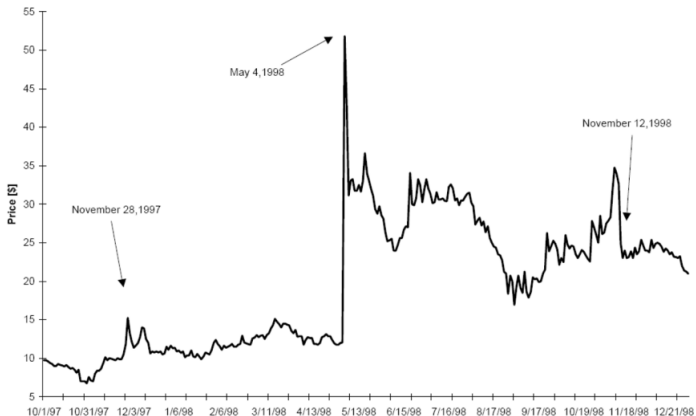
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An example of a (controversial) result of the “revolution” they started is the efficient markets hypothesis, which says the price of a financial asset reflects all relevant available information.

Inattention in Huberman and Regev (2002)

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



This was an important change, but the problem is that we don't really believe people act this way.

People seem to have inconsistent discount rates (prefer immediate gratification):

- ▶ DellaVigna and Malmendier (2006) finds that people overpay for health club memberships because they think they'll go more than they do.
- ▶ When given the chance, people set commitment devices for themselves and perform better.
- ▶ People respond “too much” to credit card teaser rates (they think they won't borrow past the teaser).

Kahneman and Tversky

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There is a disease in a town of 600 people. If program A is adopted, 200 people will be saved. If program B is adopted there is a $1/3$ chance that 600 people will be saved and a $2/3$ chance that no one will be saved.

If program C is adopted 400 people will die. If program D is adopted there is $1/3$ chance that nobody will die and $2/3$ chance that 600 people will die.

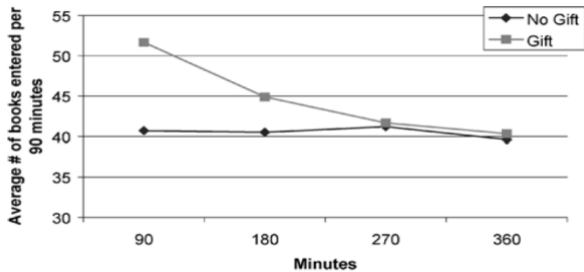
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72% of people choose A and 22% of people choose C. What matters is the reference point.

People seem to have significant social preferences:

- ▶ Dictator game
- ▶ Workers work harder when given a gift (even if it's a thermos).

Gneezy and List (2006)



People have “systematically incorrect” beliefs:

- ▶ Overconfidence
- ▶ Law of small numbers
- ▶ Inattention

Overconfidence in CEOs is the subject of Malmendier’s paper:

- ▶ CEOs who hold onto their stock options overconfident
- ▶ Overconfident CEOs invest in too many projects and over-value mergers
- ▶ They also view external financing as too expensive (own company is undervalued) so they invest out of internal cash

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Imagine an urn with 10 balls, five red and five black. The observer sees balls drawn from this urn but believes the draws to be *without* replacement. In reality the balls are drawn with replacement.

- ▶ After two black balls the actual probability of another black is .5.
- ▶ But the observer believes the probability of another black is $3/8$.

Depression Babies

A big question with all of these behavioral findings is: do they really matter?

Do they matter for output, asset prices, unemployment, etc?

One attempt to show they matter for investor behavior is Malmendier and Nagel (2011): “Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?”

The question: how does my experience of the return on the stock market affect my willingness to invest in the stock market?

There are several possibilities:

- ▶ They don't matter, what matters are the fundamentals of the asset market
- ▶ If they do matter, there are several ways that they can matter
 - ▶ All experiences are weighted equally
 - ▶ More recent experiences are weighted more
 - ▶ Early (formative) experiences are weighted more

To answer this question Malmendier and Nagel use:

- ▶ Data on individual investor decisions, attitudes, and demographics
- ▶ A proxy for individuals' experiences of the stock market

The proxy, what we will call “experienced returns,” is defined as:

$$A_{it}(\lambda) = \sum_{k=1}^{\text{age}_{it}-1} w_{it}(k, \lambda) R_{t-k} \quad (1)$$

where

$$w_{it}(k, \lambda) = \frac{(\text{age}_{it} - k)^\lambda}{\sum_{k=1}^{\text{age}_{it}-1} (\text{age}_{it} - k)^\lambda} \quad (2)$$

What is the role of λ ?

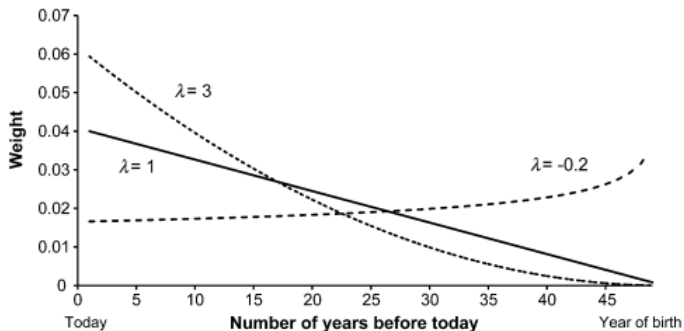


FIGURE II
Weights on Experienced Returns for Different Values of λ for a 50-year-old Household Head

So how do we figure out the right λ ?

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Using non-linear estimation methods (don't worry about it) we can estimate the following:

$$y_{it} = \alpha + \beta A_{it}(\lambda) + \gamma' x_{it} + \epsilon_{it} \quad (3)$$

where y is some outcome for individual i at time t , x is a vector of individual demographic controls, and β is the weight significance of experienced returns. The outcomes we are interested in are:

- ▶ Elicited risk tolerance (people report how willing they are to take a risk)
- ▶ Stock market participation
- ▶ Stock market expectations

The results are very significant:

- ▶ $\lambda \in [1.1, 1.7]$ meaning more recent experiences matter more (but old experiences matter too).
- ▶ Bad experiences make you much more likely to be risk averse
- ▶ Bad experiences make you much less likely to participate in the stock market
- ▶ A one percent decrease in your experienced returns means you expect a about .5 percent lower future returns.

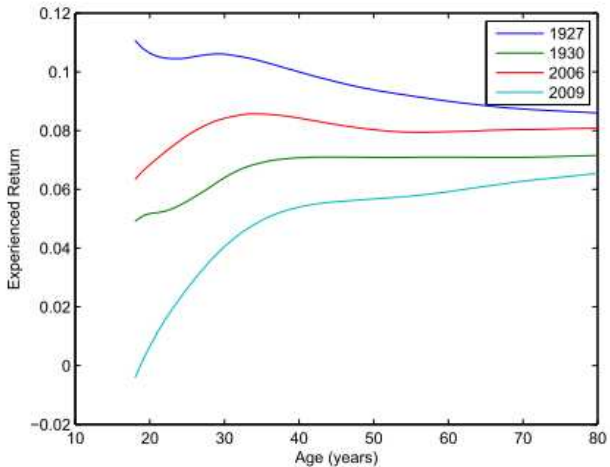


Figure 2: Sample Experienced Returns ($\lambda = 1.5$)

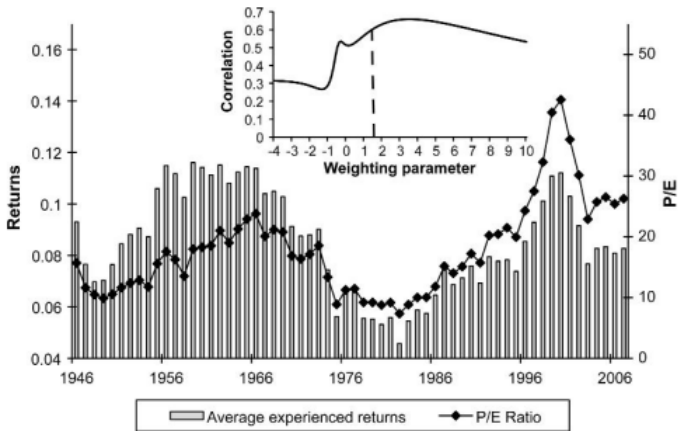


FIGURE IV
 Average Experienced Real Stock Returns ($\lambda = 1.50$) and P/E Ratio of the S&P 500
 Index 1946–2007