

Behavioral Economics Lecture 1

An Introduction to Behavioral Economics



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Behavioral Economics and Finance

- Why Behavioral Economics?
 - The workhouse of economic modeling is homo-economicus, an agent who:
 - Optimally maximizes his expected utility.
 - Optimally updates his beliefs according to Bayes rule.
 - Is selfish and without emotion, or, more formally, does not care about the consumption and utility of others.



Behavioral Economics and Finance

- Why Behavioral Economics?
 - BUT
 - Do people behave like homo-economicus?
 - If not, how do they behave?
 - What are the implications for economic theory and policy?



Behavioral Economics and Finance

- Why Behavioral Economics?
 - My first empirical proposition is that there is a complete lack of evidence that, in actual human choice situations of any complexity, these computations can be, or are in fact, performed.



Herbert Simon

(1916-2001)

Carnegie Mellon University

1978 Nobel Prize Laureate in Economics

Behavioral Economics and Finance

- Why Behavioral Economics?
 - While economists have gotten increasingly sophisticated and clever, consumers have remained decidedly human. This leaves open the question of whose behavior we are trying to model.



Robert Shiller

Yale University

2013 Nobel Prize Laureate in Economics

Behavioral Economics and Finance

- What Behavioral Economics Does?
 - It adds to the standard model of economics some reality about how humans behave. In particular, it adds,
 - bounded rationality,
 - biases in interpreting information,
 - interdependent preferences,
 - emotions,
 - Learning,
 -

Behavioral Economics and Finance

- Behavioral Economics
 - Increase the explanatory and predictive power of economic theory by providing it with more psychologically plausible foundations
 - The historical roots of behavioral economics can be traced to cognitive psychology

Behavioral Economics and Finance

1. We can find that people do behave as if homo-economicus.
2. We can find that people have inter-dependent preferences, and emotions, but are behaving ‘rationally’ relative to these.
3. We can find that people are biased in choices and how they interpret information.
4. We can say something about settings where outcomes are ambiguous with homo-economicus.

Behavioral Economics and Finance

- The effects of social, cognitive, and emotional factors
 - Economic decisions(e.g. how market decisions are made)
 - Mechanisms that drive public choice
 - Market prices, returns, and the resource allocation
- Bounds of rationality of economic agents
- Integrate insights from psychology with neo-classical economic theory

Behavioral Economics and Finance

- Three themes in behavioral finances
 - Heuristics
 - People often make decisions based on approximate rules of thumb and not strict logic.
 - Framing
 - The collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events.
 - Market inefficiencies
 - These include mis-pricings and non-rational decision making.

Behavioral Economics and Finance

■ Behavioral Finance

• Issues

- Why market participants make systematic errors?
 - Affect prices and returns, creating market inefficiencies.
 - How other participants take advantage (arbitrage) of such market inefficiencies
- Inefficiencies such as under- or over-reactions to information.
 - Limited investor attention, overconfidence, overoptimism, mimicry (herding instinct), and noise trading
 - Market trends (and in extreme cases of bubbles and crashes)
 - Theoretical basis for technical analysis

Behavioral Economics and Finance

■ Behavioral Finance

• Issues

- The asymmetry between decisions to acquire or keep Resources
 - "bird in the bush" paradox, and loss aversion: the unwillingness to let go of a valued possession.
 - Loss aversion appears in investor behavior as a reluctance to sell shares or other equity, if doing so would result in a nominal loss.
 - E.g. Why housing prices rarely/slowly decline to market clearing levels during periods of low demand?

Behavioral Economics and Finance

- Behavioral Finance
 - Experimental Finance
 - Applies the experimental method
 - Creating an artificial market by some kind of simulation software to study people's decision-making process and behavior in financial markets.
 - Quantitative Behavioral Finance
 - Uses mathematical and statistical methodology to understand behavioral biases.

Behavioral Economics and Finance

■ Behavioral Finance

• Financial Model Examples

– Thaler's model of price reactions to information

- Three phases: underreaction-adjustment-overreaction
- Overreaction occurs if the market reacts too strongly or for too long to news
- Outperforming assets in one period are likely to underperform in the following period
- Also applies to customers' irrational purchasing habits

– Stock Image

Behavioral Economics and Finance

- Behavioral Game Theory
 - Interactive strategic decisions and behavior
 - Methods of game theory, experimental economics, and experimental psychology
 - Testing deviations from typical economic theory such as the independence axiom, altruism, fairness, and framing effects
 - Interactive learning, social preferences

Behavioral Economics and Finance

- Evolutionary psychology
 - Being rational in the context of maximizing biological fitness in the ancestral environment but not necessarily in the current one.
 - When living at subsistence level where a reduction of resources may have meant death it may have been rational to place a greater value on losses than on gains.
 - Males are less risk averse than females since males have more variable reproductive success than females.

Behavioral Economics and Finance

- History of Behavioral Economics
 - The classical period
 - Adam Smith: *The Theory of Moral Sentiments* (Justice and Fairness)
 - Jeremy Bentham: psychological foundation of utility
 - The neo-classical period
 - Rational homo economicus
 - Economic psychology emerged in the 20th century
 - Expected utility and discounted utility
 - Cognitive psychology in 1960s

Behavioral Economics and Finance

■ Prospect Theory

- Kahneman and Tversky (1979)
- Decision under risk
- Two stages: editing stage and evaluation stage
- Evaluation Principles
 - Reference dependence
 - Gain or Loss is compared to a reference point
 - Loss aversion
 - Losses bite more than equivalent gains
 - Non-Linear probability weighting
 - overweight small probabilities and underweight large probabilities

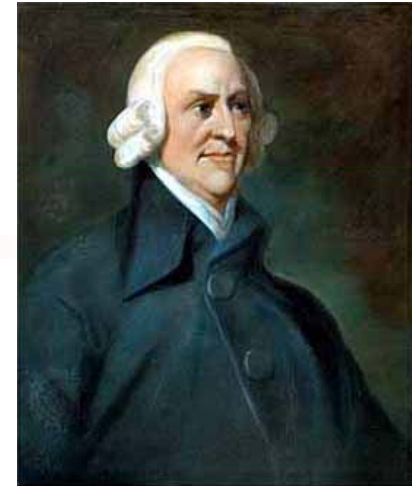
Behavioral Economics and Finance

- Intertemporal Choice
 - Hyperbolic discounting (Ainslie 1975)
 - Discount outcomes in near future more than for outcomes in the far future
 - Discounting is influenced by expectations, framing, focus, thought listings, mood, sign, glucose levels, and the scales used to describe what is discounted

Behavioral Economics and Finance

- Other Areas
 - Fairness, inequity aversion, reciprocal altruism
 - Intrinsic motivation
 - Identity
 - Conditional expected utility

Adam Smith Origination



Adam Smith (1723-1790)

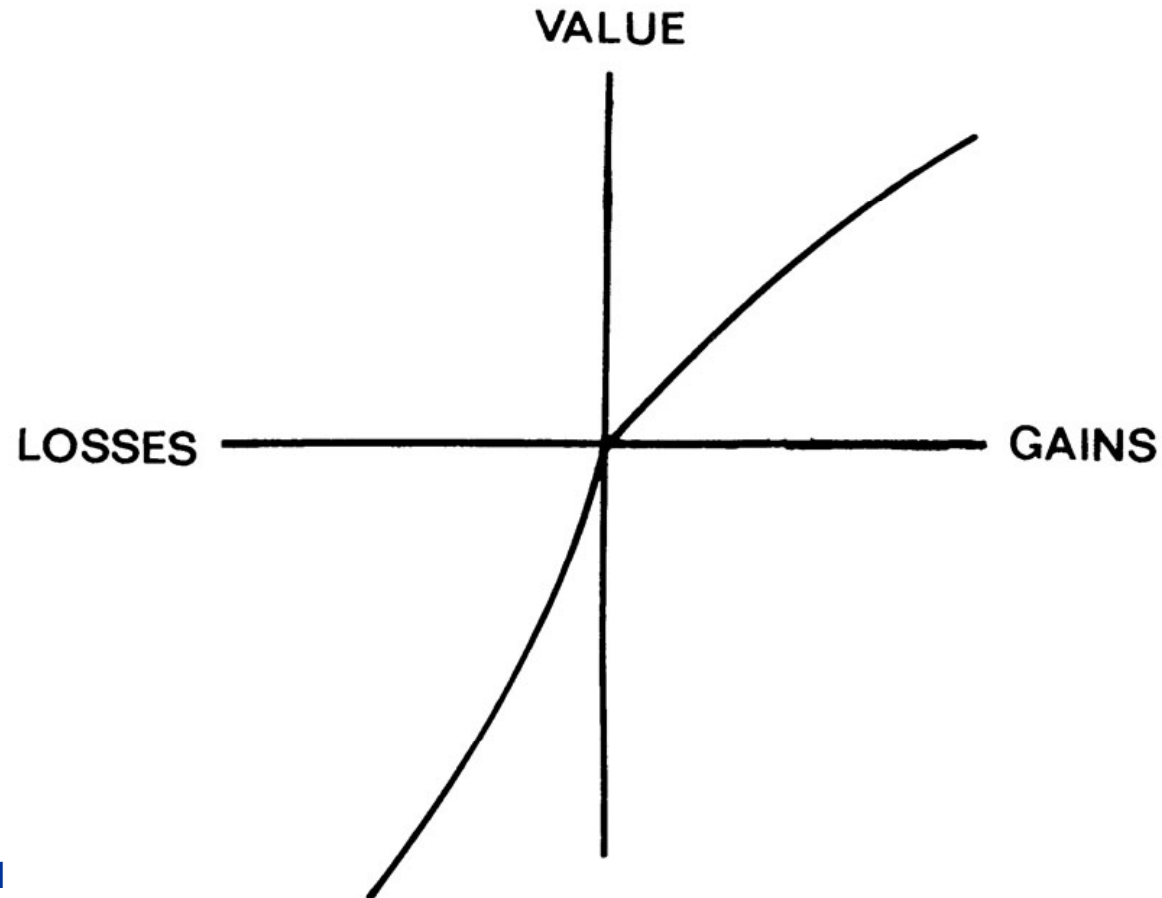
- *The Wealth of Nations*, 1776
- *The Theory of Moral Sentiments*, 1759
 - Behavior
 - Struggle between “passions” and “impartial spectator”
 - Passion
 - Hunger, sex, emotion(fear, anger), pain
 - Impartial Spectator
 - Moral hector
 - Short-term gratification vs. long-term costs

Preference and Dual-Process

- Loss Aversion
 - Prospect Theory (Kahneman and Tversky ,1979)
 - People underweight outcomes that are probable compared with outcomes with certainty.
 - Risk Aversion Effect
 - Isolation Effect

Preference and Dual-Process

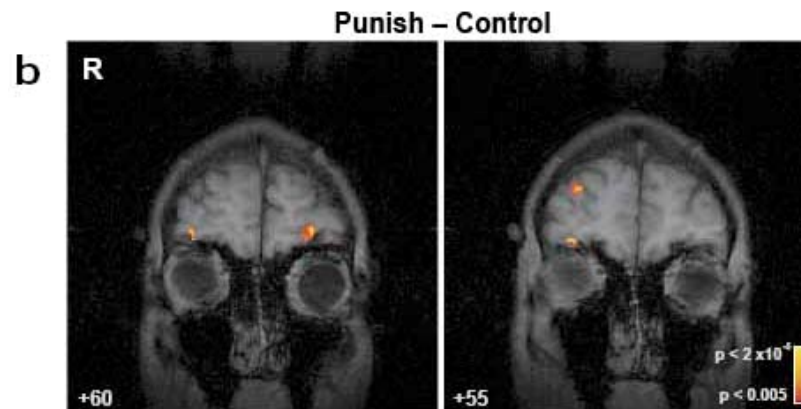
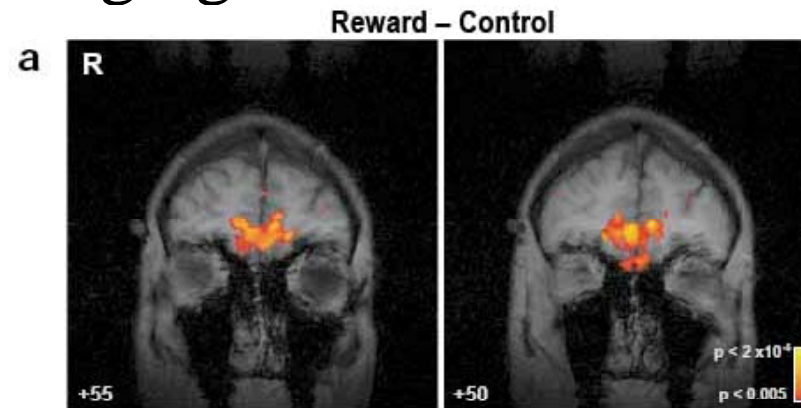
- Loss Aversion
 - Prospect Theory (Kahneman and Tversky ,1979)



Preference and Dual-Process

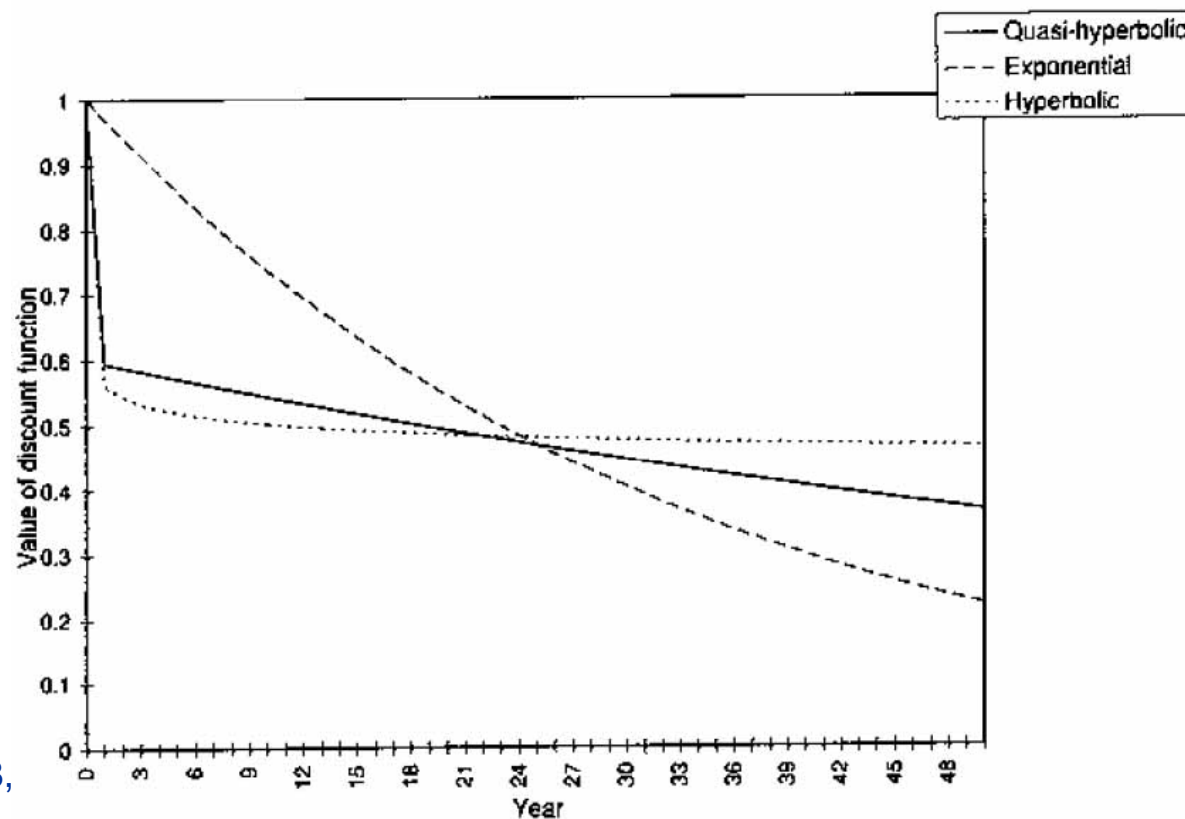
- Loss Aversion

- Brain Imaging (O'Doherty, Kringelback, Rolls, Hornak & Andrews, 2001)



Preference and Dual-Process

- Intertemporal Choice and Self-Control
 - Myopic passions & farsighted impartial spectator
 - Quasi-hyperbolic Discounting Model (Laibson 1997)



Preference and Dual-Process

- Overconfidence
 - Optimistic Biases and Entry into Competitive Game or Market (Camerer, Lovallo, 1999)
 - Financial Market Application (Barber, Odean, 2001)

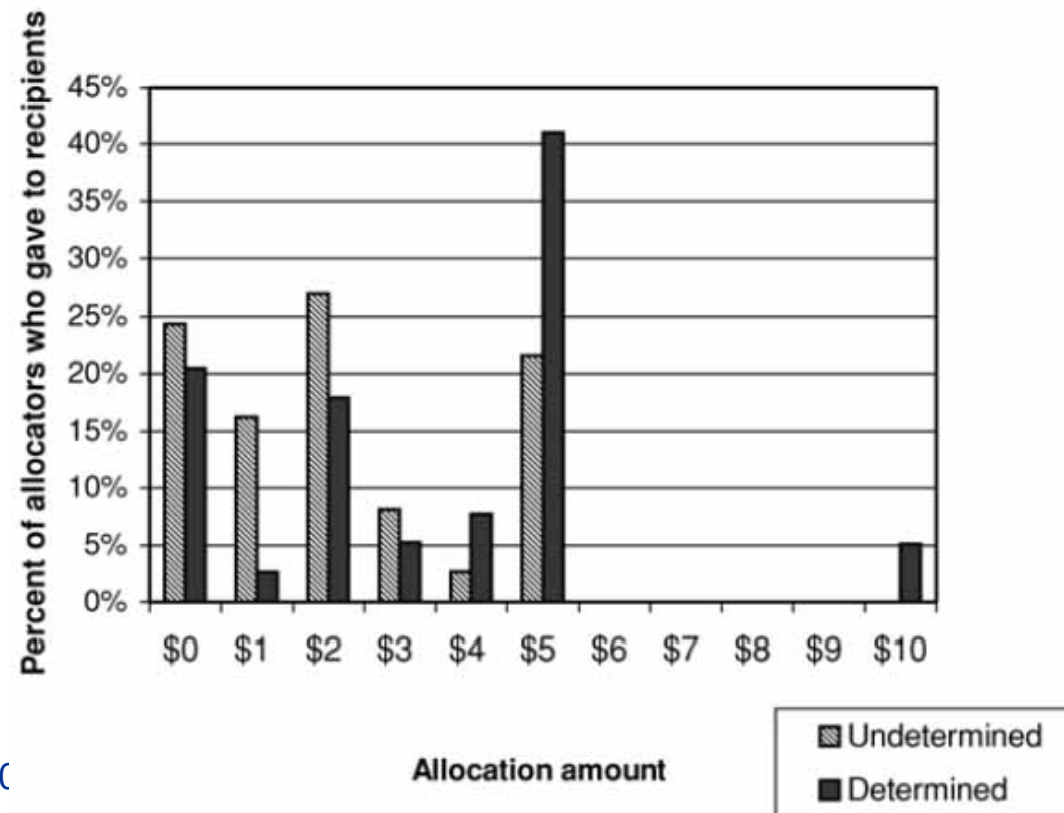
CROSS-SECTIONAL REGRESSIONS OF TURNOVER, OWN-BENCHMARK ABNORMAL
RETURN, BETA, AND SIZE; FEBRUARY 1991 TO JANUARY 1997

Dependent variable	Mean monthly turnover (%)	Own-benchmark abnormal net return	Portfolio volatility	Individual volatility	Beta	Size coefficient
Intercept	6.269***	-0.321*** (-11.47)	11.466*** (58.85)	11.658*** (70.98)	1.226+ (11.44)	0.776*** (22.16)
Single	0.483*** (4.24)	0.002 (0.14)	0.320*** (3.40)	0.330*** (4.17)	0.020** (2.12)	0.079*** (4.65)
Woman	-1.461*** (-12.76)	0.058*** (4.27)	-0.689*** (-7.27)	-0.682*** (-8.54)	-0.037*** (-3.91)	-0.136*** (-8.00)
Single × woman	-0.733*** (-3.38)	0.027 (1.08)	-0.439** (-2.45)	-0.540*** (-3.57)	-0.029 (-1.60)	-0.138*** (-4.30)
Age/10	-0.311*** (-9.26)	0.002*** (4.23)	-0.536*** (-19.31)	-0.393*** (-16.78)	-0.027*** (-9.55)	-0.055*** (-11.00)
Children	-0.037 (-0.40)	0.008 (0.76)	-0.014 (-0.19)	-0.051 (-0.79)	-0.002 (-0.22)	-0.008 (-0.61)
Income /1000	-0.002 (-1.30)	0.0002 (1.33)	0.0003 (0.22)	0.001 (1.38)	0.003 (2.49)**	0.001 (0.31)
Income dummy	-0.0003 (-0.24)	0.027 (1.54)	0.011 (0.10)	0.012 (0.11)	-0.008 (-0.68)	-0.018 (-0.82)
Adj. R^2 (%)	1.53	0.20	2.11	1.95	0.59	1.19

Preference and Dual-Process

■ Altruism

- Pure Altruism and Impure Altruism (Andreoni, 1990)
- People would help others (Small, Loewenstein, 2003)



Preference and Dual-Process

- Fairness
 - People do not seek uniformly to help others (Altruism); They do so according to how generous other people are
 - People like to help those who are helping them, and to hurt those who are hurting them (Rabin, 1993)
 - Beyond humans to other primates
 - Capuchin monkeys will reject small rewards when they see other monkeys they perceive as undeserving getting more than they do (Brosnan and de Waal, 2002).

Preference and Dual-Process

■ Trust

- Trust is a lubricant of exchange, economizing on the costs of gathering information about trading partners. (Arrow, 1974)
- Trust Game
 - The second subject does repay money
 - they typically repay just enough to make the investment worthwhile
- Trust is strongly correlated with economic growth (Knack and Keefer, 1997)

Preference and Dual-Process

- Behavior Interaction in Markets
 - Markets are often built on motivations of fairness, altruism and trust—rather than on self-interest alone
 - The mixture of motivations remains a challenge to the economists

Consumption and Its Discontents

■ Happiness

- Short-term impacts on happiness of both positive and negative outcomes (Frederick & Loewenstein, 1999)
- Happiness of paraplegics and lottery winners tends to revert surprisingly close to a normal baseline after their respectively tragic and wonderful life-changing events (Brickman et al, 1978)
- People typically believe that pleasure and pain will last longer than they actually do (Wilson & Gilbert, 2003)