

Psychology and Personal Finance

Heuristics and Biases

Overview

- Heuristics
 - What “shortcuts” are we using?
- Biases
 - When are we predictably wrong?
- Other Behavioral Principles
 - Why do we behave the way we do?
- Assignment 1 Overview

Remember This Exercise?

Is it 5000....

1000

10

1000

20

1000

30

1000

40

...or 4100?

Sometimes, heuristics can lead to the wrong answer!

Heuristics and Biases

- Heuristics = “Quick Rules of Thumb”
 - Optimal decision NOT guaranteed
- Biases = “Applying Heuristics Inappropriately”
 - Can negatively influence decision making process

Question:

Which is the more likely cause of death?



Falling Plane Part



Shark Attack

Death by falling plane parts is 30x MORE likely

Source: <http://www.learner.org/discoveringpsychology/11/e11expand.html>

Availability Heuristic

Readily available events in memory affect the judgment of frequency



What We've Learned (So Far)

- Heuristics
 - Availability: readily available events in memory affect the judgment of frequency

Roulette Anyone?

Roulette is a casino game where a wheel and a ball are spun in opposite directions and eventually, the ball falls into a space. Bets can be placed on whether the ball will fall into a red, black, or green space.

There are 18 red spaces,
18 black, and 1 green



Question:

You're in Vegas and walk up to roulette tables with the 5 previous spins posted as:

Table 1	Table 2
2	9
27	36
31	7
26	5
12	9

Which table would you feel more comfortable placing a bet on “black”?

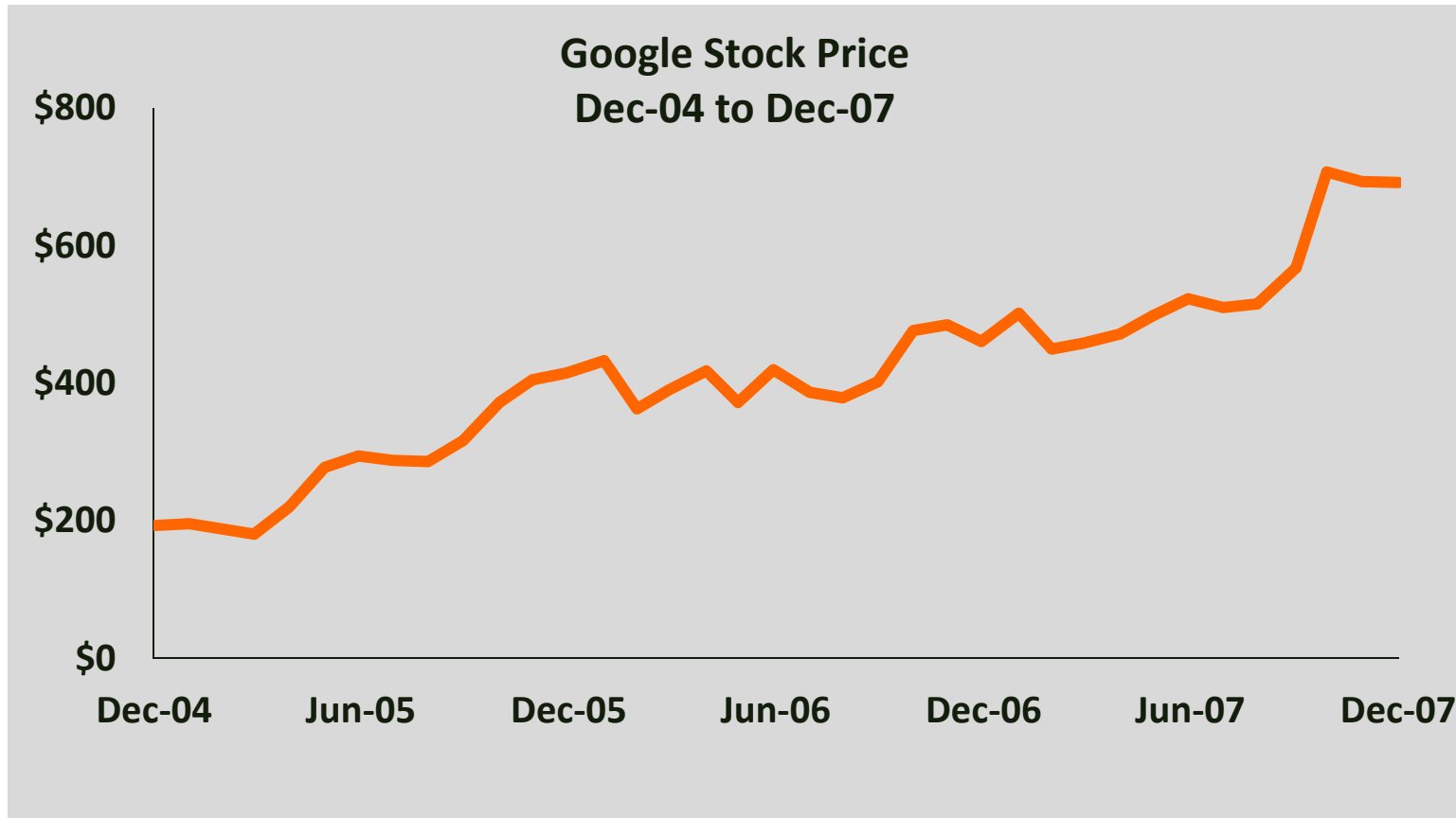
Representativeness Heuristic

- Representativeness Heuristic
 - Belief that even small samples should be representative of the population
 - People also think that the recent past is indicative of the future
- The Gambler's Fallacy says:
 - 5 “reds” in a row in a fair game...black is due!

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Gambler's Fallacy: 5 "reds" in a row in a fair game...black is due!

Question: What Will Google's Price Be In The Future?



Source: www.morningstar.com

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Gambler's Fallacy
 - Excessive Extrapolation: 3 years of increases...it's bound to increase again!

Do You Believe...



This is a Future Tennis Prodigy?

There is a SI Cover “Jinx”?



Question:

What would you predict these 3 students' college GPAs to be based on their high school GPAs?

Student	High School GPA	Predicted College GPA	Actual College GPA
A	3.80	3.46	3.30
B	3.00	2.77	2.93
C	2.20	2.03	2.70

Regression Toward the Mean

Extreme scores or performances measured at any one point in time will probably be less extreme the next time they are measured

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Gambler's Fallacy
 - Excessive Extrapolation
 - Regression Toward the Mean: extreme observations will most likely revert to the mean

Question:

- (1) Write down the last 4 digits of your SSN
- (2) Do you think that a Gronitz PCM-5 CC Tuba costs more or less than this number?
- (3) What is your best estimate of the cost of a Gronitz PCM-5 CC Tuba?



Anchoring

- The tuba costs ~\$12,000 according to www.tubaexchange.com
- Any arbitrary number can influence your guess by “anchoring” you to that number

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Anchoring: any arbitrary number can influence your guess by “anchoring” you to that number

Affect Heuristic

Why do entertainers change their names?

- Less attractive names are judged to be of lower quality



Judy Garland
or
Frances Gumm?



Tom Cruise
or
Tom Mapother?



Ice - T
or
Tracy Marrow?



Jane Seymour
or
Joyce Frankenburg?

Source: Slovic, et. al (2002)

Affect Heuristic

An emotional evaluation that occurs before conscious reasoning

“The stock market is more likely to go up on sunny than on cloudy days...”



Source: <http://heuristics.behaviouralfinance.net/affect/>

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Anchoring
 - Affect: an emotional evaluation that occurs before conscious reasoning

Question:

What grade do you expect to get in this class?

Optimism



OPTIMISM

Knowing somewhere there is a glass that is half full

DIY.DESPAIR.COM

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Anchoring
 - Affect
- Biases
 - Optimism







Question:

What's your range with 90% confidence on what it would cost to have your own private island in the Maldives for a day?



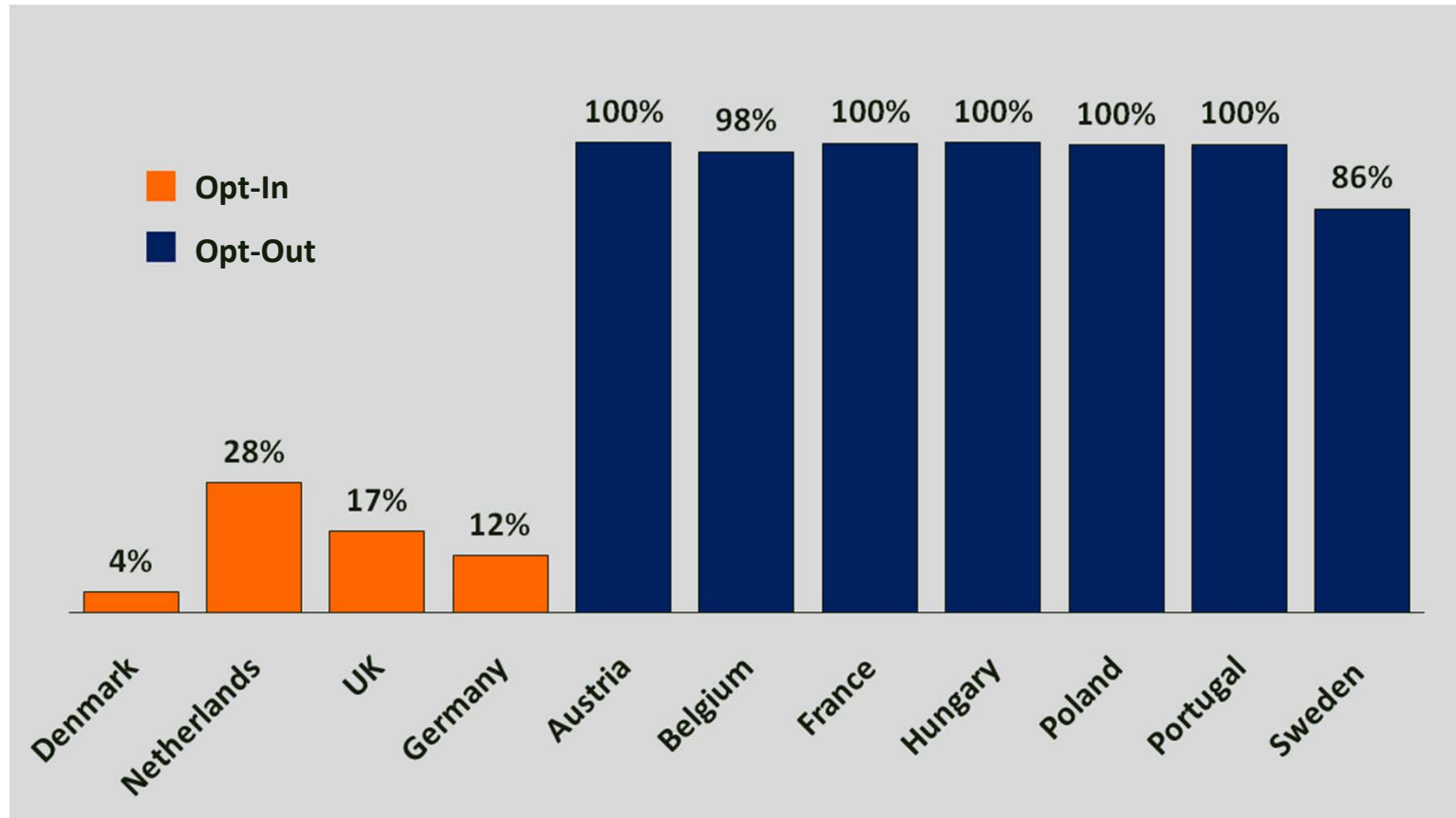
Overconfidence



What We've Learned (So Far)

- Heuristics
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 - Affect
- Biases
 - Optimism
 - Overconfidence

Organ Donation Consent Rates



Source: Johnson, et. al (2003)

What We've Learned (So Far)

- Heuristics
 - Availability
 - Representativeness
 - Anchoring
 - Affect
- Biases
 - Optimism
 - Overconfidence
- Other Principles
 - Inertia

Blackjack Rules

The dealer hands you two cards, facing up. The dealer also receives two cards, but you can only see one. To win, your cards must total more than the dealer's.

You can request more cards to increase your total, but if your total exceeds 21, you lose immediately.

Let's Play A Game...



Hit or Stand?

Blackjack

- Experts say you should take another card (hit)
- Most players do not take a card (stand)
- Why?

Regret Aversion

- Taking action and losing feels worse than “doing nothing” and losing
- Although the outcome is the same, regret plays a larger role post-action

What We've Learned (So Far)

- Heuristics
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 - Affect
- Biases
 - Optimism
 - Overconfidence
- Other Principles
 - Inertia
 - Regret Aversion

Illusion of Control

- Craps players throw harder when they want higher numbers and softer for lower numbers
- People choose their own lottery numbers, thinking they can pick the winners



Source: Henslin, (1967)

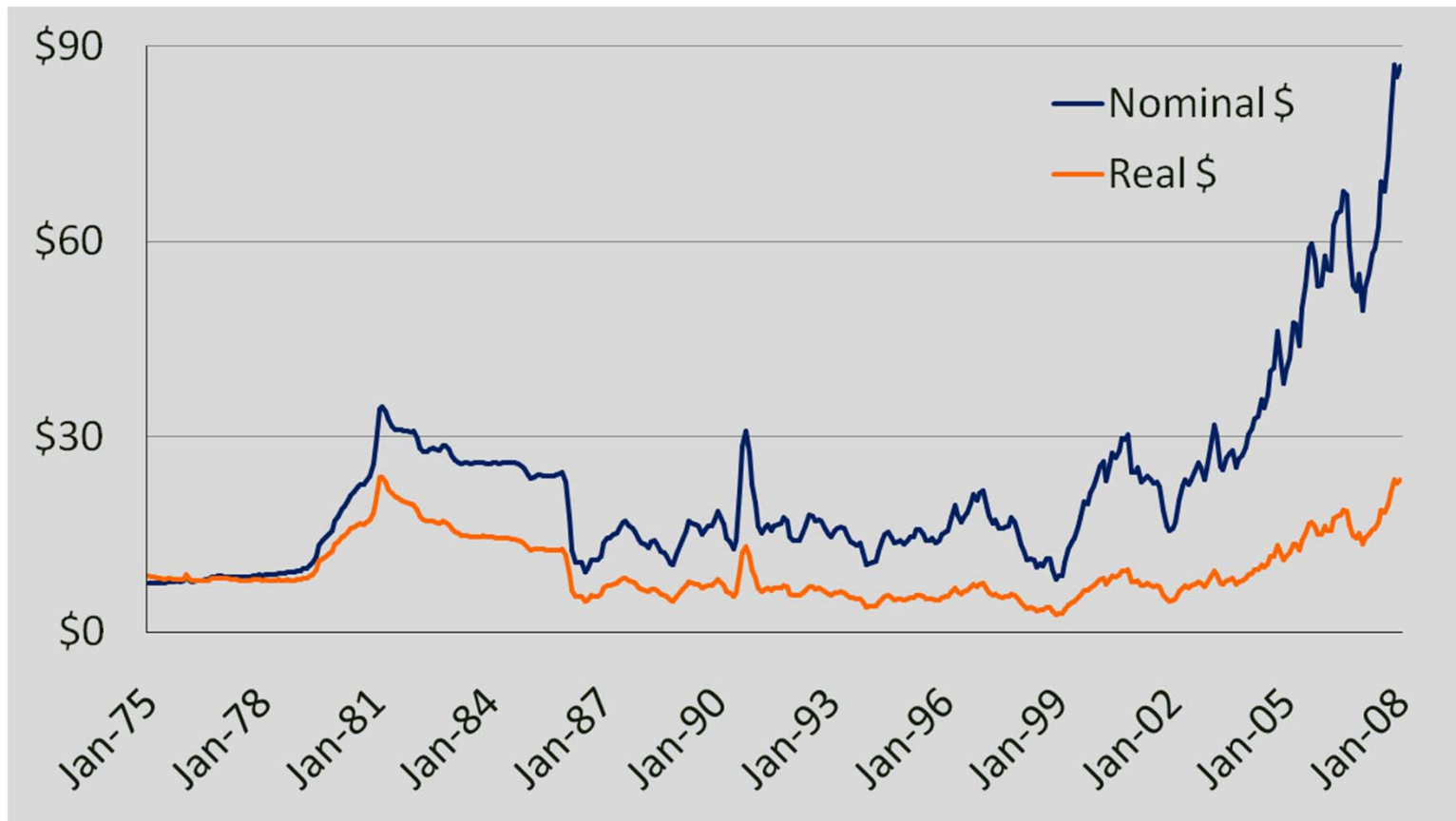
What We've Learned (So Far)

- Heuristics
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 - Optimism
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- Other Principles
 - Inertia
 - Regret Aversion
 - Illusion of Control

Question:

Do you think that the price of crude oil was higher in 1981 or 2007?

Money Illusion – Price of Crude Oil



Source: http://en.wikipedia.org/wiki/Image:Oil_Prices_1861_2007.svg

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- Other Principles
 - Inertia
 - Regret Aversion
 - Illusion of Control
 - Money Illusion

Driving in Bolivia

The Stremnaya Road is extremely beautiful with gorgeous mountains, cliffs and greenery. While the road offers dramatic scenery, it is considered by some the most dangerous road in the world. The combination of extremely narrow roads and tall cliffs could easily result in a deadly accident, and an average of two vehicles per month fall from the road. The danger of the road ironically though has made it a popular tourist destination starting in the 1990s. Mountain biker enthusiasts, in particular, have made it a favorite destination for downhill biking.

Question:

Would you be interested in taking an all expenses paid trip to the Stremnaya Road?

- Yes
- No
- I am not sure















Question:

Would you be interested in taking an all expenses paid trip to the Stremnaya Road?

- Yes
- No
- I am not sure

Intuitive vs. Deliberative Self

Cognitive / Deliberative

Relatively slow

Demanding of cognitive capacity

Controlled

Analytic

Rule-based

Intuitive / Affective

Relatively fast

Undemanding of cognitive capacity

Automatic

Holistic

Associative

Sources: Stanovich and West (2002)

Consequences

Affective processing can result in...

- Paying more to save a panda bear
- Taking less risk in a variety of domains (from smoking to choosing travel destinations)
- Saving more for retirement

Sources: Hsee and Rottenstreich (2004), Hammond et al. (2004, 2006)

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 - Regret Aversion
 - Illusion of Control
 - Money Illusion
 - Intuitive vs. deliberative self

Additional Concepts

- Mental Accounting
- Ambiguity Aversion
- Familiarity Bias
- Choice Overload
- Elderly Innumeracy
- Ease of Evaluation