

# Behavioral Finance

## *Availability*

# Introduction

Now that we have laid the groundwork for understanding human choices and probability weightings, we will examine more closely a series of identified biases in the way we make decisions. These biases are widely applicable in broad areas of human decision making: choices over money, medical decisions, legal proceedings and more.

Throughout this section, we will refer to “heuristics.” A heuristic is a rule of thumb; a mental shortcut to help us navigate the enormous number of decisions we must make on a daily basis. If you look out of the window and the sky is gray, you might grab an umbrella on your way out of the door, rather than stopping to carry out an extensive analysis of the likelihood of rain.

Heuristics are essential, but many of these shortcuts can lead to “biases”; situations in which the back-of-the-envelope assumption steers us wrong, and in a predictable manner.

The first heuristic-driven bias that we examine in detail is typically known as “Availability.” We will see that people’s views on outcome probabilities are strongly influenced by the ease with which we can recall examples of that outcome. Dramatic, heavily reported but rare events carry greater weight in our minds because we hear so much about them. On the flip side, common but under-reported outcomes seem *less* likely than they actually are.

We will discuss how this bias systematically affects our financial decisions, including why we purchase insurance or lottery tickets, our preferences for certain highly branded goods, and our desire to make similar choices to those around us, rather than going out on a limb and being a contrarian.

# The Availability Heuristic

See the Lecture:  
The Availability  
Heuristic

The Availability heuristic is a rule of thumb in which decision makers assess the probability of an event by the ease with which instances can be brought to mind.

- Individuals *overweight* the probability of a rare event when:
  - Examples are easy to recall
  - There has been a recent, highly publicized, occurrence
- Individuals *underweight* higher probability risks if:
  - They are not personally aware of any recent occurrences
- Examples of the impact of the availability heuristic:
  - Following a rare but significant natural disaster, individuals exhibit greater willingness to purchase insurance against future such events
  - A small number of highly public corporate bankruptcies drive investors away from *all* risky equities, when the vast majority of corporations are in strong financial condition

# Evolutionary Explanation for the Availability Heuristic

- Our ancestors on the savannah judged the likelihood of an event based on how many incidents of that event they could recall
  - If the larger concern for your tribe was being poisoned by berries, rather than being attacked by wild animals, you paid close attention to what you ate, without expending much effort to watch for wolves or lions
- In the modern era, the media is biased towards reporting *unusual* events, since they provide greater dramatic impact and hence sell more newspapers / keep our eyes on the TV or computer screen
- We are therefore inclined to think that these low probability, high drama events are more likely than they really are, because we are genetically predisposed to believe that, the more we hear about something, the more likely it is
- Remember our bias towards *overweighting* low probabilities:
  - Fear of flying after 9/11
  - Concern about *all* canned foods after a recent, one-off, botulism scare

# The Impact of Imagination and Vividness

- If outcomes are easy to imagine, then the act of imagining them will tend to make them appear more probable
  - Insurance salespeople rely on *vividness* to sell insurance for low probability (and often low-cost) outcomes
- Should you buy product insurance on an electronics item whose subsequent breakage would neither be a disaster nor break the bank to replace? (more on this in the next section)
- What about all of the insurance add-ons that car salesmen invite you to purchase? Some level of auto liability insurance is required by law, but most other add-ons reflect a net gain to the auto company, for example:
  - Personal Injury Protection (PIP): If you (and anyone you are likely to take with you in the car) already have health insurance, PIP is worthless
  - Seven year service warranty: Even given an uncertain economic environment, during the last few years, the average American holds onto a new car for about 5 years, and a used car for 4 years. So who benefits from the 7 year warranty?
- Later discussion about Mental Accounting will provide further insight as to why we buy unnecessary insurance in many situations.

# Case Study: Earthquake Insurance

*A climatologist and business consultant from New Mexico, Iben Browning, made news when he predicted there was a 50% chance that an earthquake with a magnitude of 6.5 to 7.5 on the Richter scale would occur along the New Madrid fault (a seismic zone in some southern and mid-western states) on December 3, 1990.*

*In this particular case, the media were highly responsive to Browning and his forecast. He made his prediction during “sweeps” week, when TV stations are competing heavily for viewers – TV producers know that rare but dramatic news draws ratings.*

*While expert geologists dismissed Browning’s prediction, insurance companies began reporting a blitz in earthquake insurance. Many insurance companies further capitalized on this opportunity by quickly sending out mass mailings featuring the December 3 prediction.*

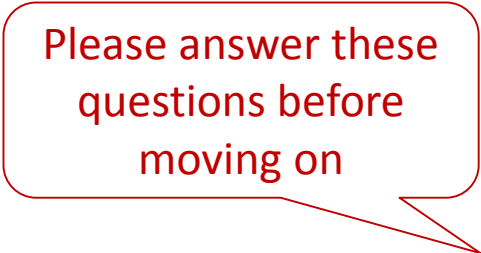
*No earthquake took place on December 3, but the vividness and salience caused thousands to overestimate the probability, and buy earthquake insurance as a result.*

# The Effect of Salience

Which is more probable: death by homicide or death by suicide?

Which is more likely: death resulting from motor vehicle accident, or death as a result of firearms?

In the English language, is it more likely that a word starts with the letter K, or that K is its third letter (not including 3-letter words)?



Please answer these  
questions before  
moving on

# The Effect of Salience

Which is more probable: death by homicide or death by suicide?

Many people are surprised to learn that death by suicide is more than twice as likely as death by homicide

Which is more likely: death as a result of firearms (either intentional or accidental) or from a motor vehicle accident

Death by motor vehicle accident is slightly more common than death relating to firearms

In the English language, is it more likely that a word starts with the letter K, or that K is its third letter (not including 3-letter words)?

There are about three times as many English words that have K as the third letter than K as the first letter

How many of these did  
you get right?



# Endorsements

We are considerably more moved to think well of a product when it is endorsed by a celebrity that we like – even if the product has no connection to the celebrity's expertise

- Along with sports-related endorsement deals (e.g. Nike Golf), Tiger Woods was paid millions of dollars to endorse AT&T, Accenture, Gillette, and Rolex, among others
  - There is no reason to think that Tiger's golfing ability makes him a better judge of technology consulting firms
  - Just the association – and constant exposure to advertisements that place a respected sporting figure in conjunction with the firm – has been shown to be beneficial from a marketing perspective
- Tiger subsequently lost many of these endorsements after his fall from grace in 2009

# Signal vs Noise

- Throughout the computer age, we have been told that increasing computational potential will improve our ability to analyze the past, and thus predict the future with more accuracy.
- It is also assumed that the massive increases in data availability confer the same benefits. “Big Data” is the current mantra.
- The data on their own tell us nothing, however. They must be analyzed appropriately.
  - Data *mining* is a common mistake: searching for correlations will invariably find some, but as we’ve already seen, many of those links are coincidental, or both driven by some other source (remember ice cream and shark attacks)
  - Never before 2007 had so much financial data been available to so many people; this did not prevent the “Great Recession” of 2007-2009
  - The fallacy of “more data are better” may give analysts false confidence in their prediction models

# The Additional Impact of Frequency & Timing

## Vividness

When managers conduct performance reviews of their staff, they often rely heavily on memory rather than documented evidence. Vivid instances that are easy to recall (both favorable and unfavorable) will appear more numerous, and hence will be weighted more heavily.

## The Recency Effect

Managers carrying out annual performance reviews also tend to give more weight to performance during the 3 months prior to the evaluation than the 9 months prior to that.

## The Frequency Effect

While we may be annoyed or bored by repeated exposure to the same advertisement on TV, evidence suggests that this bombardment of information makes the product easier to recall, and does, in fact, increase the likelihood that we will purchase it.

# The Sarafem Story:

## A case study

*In July 2000, the pharmaceutical company Eli Lilly introduced a new drug, Sarafem, for Premenstrual Dysphoric Disorder (PMDD). PMDD was devised by Lilly as a “medicalized” version of Premenstrual Syndrome (PMS), many women’s normal few days of cramps and crankiness each month.*

*With the label PMDD, Lilly offered millions of woman an honorable excuse for their monthly moodiness. Behavior that in the past was brushed off, or attributed to “the time of the month” could now be classified as a disease. Women now felt entitled to the concern and consideration appropriate to those with a recognized condition. And there was only one prescription drug tailor-made and FDA-approved to cure it. The cure itself, winningly labeled Sarafem (think “seraphim”, those gentle angels), was nothing more than a re-packaged, pink-coated version of Prozac, Eli Lilly’s incredibly successful, billion-dollar anti-depressant.*

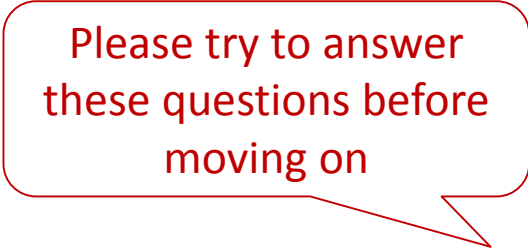
*Lilly ran a persuasive TV advertisement for Sarafem, depicting an almost tearful woman fighting a losing battle with a recalcitrant supermarket cart. A soothing voice-over then assured viewers that their pre-menstrual “disorder” now has a “cure”.*

# Sarafem & Availability

How does the Availability heuristic play into the Sarafem story?

What other biases is Eli Lilly preying on?

What was Eli Lilly's motivation in repackaging Prozac for this new disorder?



Please try to answer  
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# Sarafem & Availability

How does the Availability heuristic play into the Sarafem story?

The more women see the shopping cart advertisement\*, and hear about the symptoms of the PMDD syndrome, the more likely they are to believe that they themselves suffer from PMDD if they have experienced similar frustration during “the wrong time of the month.”

What other biases is Eli Lilly preying on?

By continual exposure to stories about PMDD, the Reference Point for normal health was altered. “Normal” PMS symptoms each month became reclassified as a “disorder” that required treatment.

What was Eli Lilly’s motivation in repackaging Prozac for this new disorder?

Prozac was about to go off-patent, meaning that competing firms could sell generic versions of the drug at far lower cost. By repackaging Prozac for a new disorder, Eli Lilly could extend the patent period, and the commensurate high profits, when prescribed for this new indication.

\*The FDA administered a slap on the wrist to Eli Lilly for their shopping cart ad. According to the FDA, "The advertisement never completely defined or accurately illustrated PMDD and there is no clear distinction between premenstrual syndrome (PMS) and PMDD..."

# Sarafem & Associated Costs

What is wrong with Eli Lilly “medicalizing” PMS as PMDD, and selling a prescription drug to treat it?

**Side effects.** Prozac, like almost any prescription drug, comes with some downside: anxiety, drowsiness, insomnia, dry mouth, diarrhea, weight changes, and decreased sex drive are common symptoms for those who take Prozac.

- For women who genuinely suffer from extreme PMS symptoms, as for individuals with clinical depression, Prozac is a godsend that meaningfully improves their quality of life, and is well worth the side effects.
- Is the same true for women with 2-3 days of mild moodiness once a month? What about the partners of those women (look at the side effects again)?

**Societal cost:** by rebranding Prozac and keeping it on patent, Lilly achieves two financial goals: increasing the consumer pool, and maintaining monopoly prices for this new demographic.

- Since the majority of expensive prescription drug costs are paid by insurance companies, all of us effectively share the cost when this substantial new pool of consumers purchases “pink Prozac” at monopoly prices

# Availability & its Implications

## Financial Markets

During the internet boom of the 1990s, the ease with which web users could think of potential applications may have led to the tech boom

The extent to which like-minded individuals tended to get together and talk about the internet—especially those who were already invested in tech stocks—would have exacerbated this effect (this is sometimes referred to as “availability cascades”)

## Legislation

In the UK, ownership of all handguns was made illegal following a single incident – 14 children killed by a lunatic with a gun who entered a school and fired indiscriminately

Following a small number of high profile corporate frauds in 2000, (Enron, Worldcom) the SEC imposed a broad swathe of new corporate financial statement regulations, costing corporations billions of dollars in compliance costs

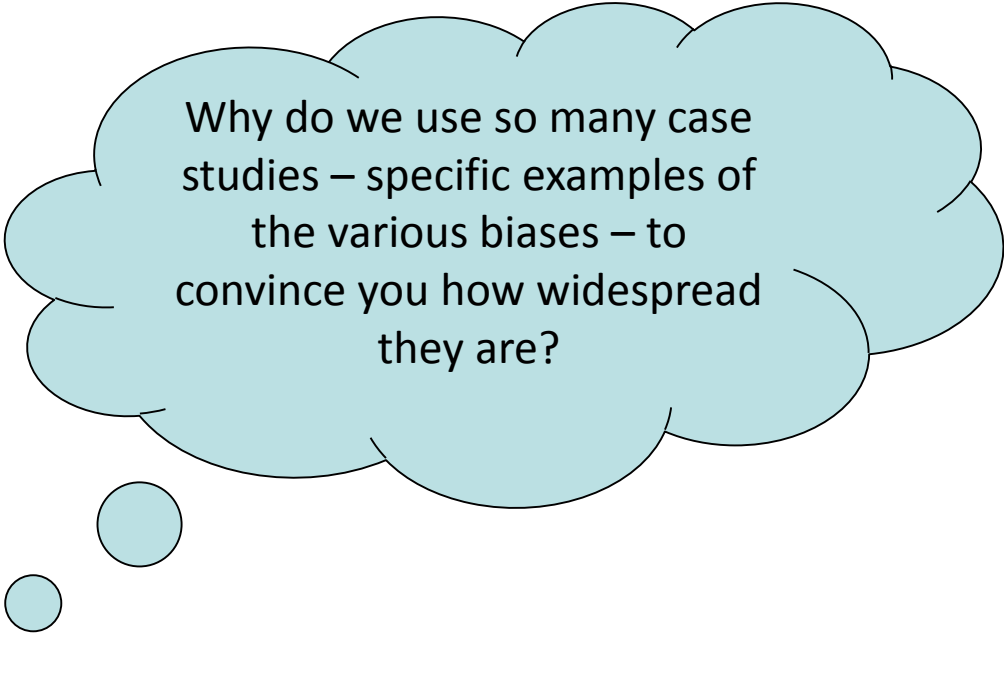


# Section Summary

In this section, we have learned:

- Why we are inclined to assume that, the more we hear about something, the more likely it must be – and why this is very far from the truth in this day and age
- How wily advertisers, insurance companies and even health care companies can take advantage of this heuristic to persuade us to buy their products
- Under what circumstances we are most susceptible to the Availability Heuristic
- Ways in which this heuristic can drive boom-bust cycles in the financial markets, as well as significant regulation in a whole range of arenas.

# Availability – a Final Thought



Why do we use so many case studies – specific examples of the various biases – to convince you how widespread they are?