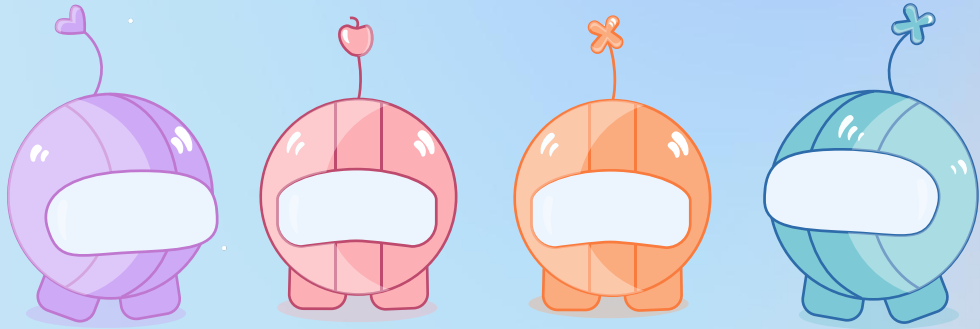


EE 434 SEM 1/2021  
Sunsiree Kosindesha



# Heuristics & Biases

And their implications for financial decision-making



“Traditional models in economics and finance is formulated as if the typical decision-maker were an individual with unlimited cerebral RAM.

Such a decision-maker would consider all relevant information and come up with the best choice under the circumstances in a process known as constrained optimization.”



# CAPM : capital asset pricing model

- In order to make appropriate portfolio decisions, CAPM assumes that investors are capable of studying the universe of securities in order to come up with all required model inputs.
- CAPM assumes that investors should know:
  - expected returns and variances for all securities
  - covariances among all securities.

$$ER_i = R_f + \beta_i \underbrace{(ER_m - R_f)}_{\text{mkt risk premium}}$$

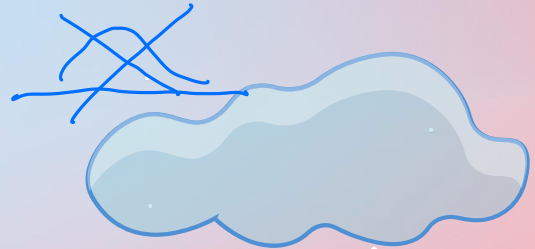



limited cognitive capacity

# How do people make decisions with limited time and limited information in a world of uncertainty ?



don't know what possible  
don't know the prob of what is possible





# Perception



- Perception is the process or result of **becoming aware** of objects, relationships, and events **by means of the senses**, which includes such activities as recognizing, observing, and discriminating.
- Perception includes the five senses; **touch**, **sight**, **sound**, **smell**, and **taste**, and more.
- Perception **downloads information to the “human computer.”**

# Perception

- Perception is selective, with expectations strongly conditioning perception.
- We often “see” what we expect to see.
- Perception can be distorted in a self-serving fashion.

⇒ Information can be distortedly perceived.

# Cognitive dissonance



Make  
vs. Today  
Cost

- An unpleasant psychological state resulting from **inconsistency** between two or more elements in a cognitive system.

- For example, the unpleasant emotion from holding **two contradictory beliefs or attitudes** at the same time

- People do not always treat **sunk costs** as irrelevant to marginal decisions.

"sunk cost fallacy"

vs.

rationality

: sunk cost should not matter

- Should investor **"Sell in May and Go Away"** ?

Belief...

- Cognitive dissonance creates a motivational drive in an individual to reduce the dissonance and avoid psychological inconsistencies.

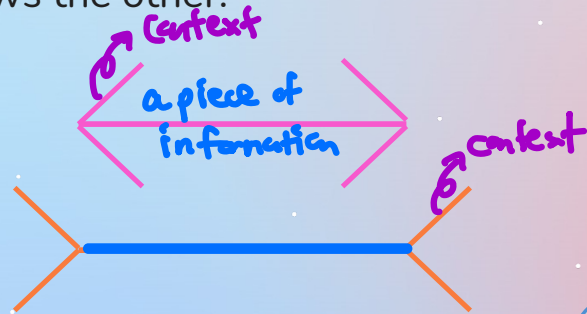


# Memory

- Memory is **specific information** or a **representation of past experience** that is recalled or the ability to retain such information.
- Memory can be **imprecise** and is **variable in intensity**.
- Events are remembered more vividly when they arouse **emotions**.

# Framing effect

- Perception and memory are influenced by context.
- For example, contrast effect is due to framing effect.
- Contrast effect is the perception of an intensified or heightened difference between two stimuli or sensations when they are juxtaposed or when one immediately follows the other.
- The Muller-Lyer illusion:
  - the context of the inward or outward arrows makes the observer believe otherwise.



# Primacy effect vs. Recency effect

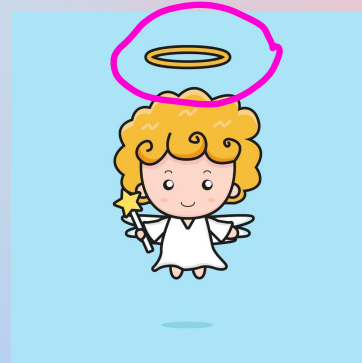
Context of time

- Primacy effect: what comes first has greater impact.
  - Someone described as "intelligent, industrious, impulsive, critical, stubborn, envious"
  - Someone described as "envious, stubborn, critical, impulsive, industrious, intelligent"
  - Which one creates more positive impression?
- Recency effect: what comes last has greater impact.
- When events are separated by a nontrivial passage of time, recency generally dominates.

# Halo effect

- A rating bias in which a general evaluation (usually positive) of a person, or an evaluation of a person on a specific dimension, influences judgments of that person on other specific dimensions.
  - If an interviewee dresses well, his interview will be taken more seriously.
  - Endowed physical attributes create an impression.

Anchor & Adjustment ?  
Signaling ?



# Ease of processing

- Information that is easier to understand is often viewed as more likely to be true.
- **Information overload:** A state of confusion and decision avoidance.
  - Too many options can lead to the feeling that the decision was too complicated for immediate action.

# Heuristics

- A heuristic is a decision rule that utilizes a subset of the information set.
- It is a mental shortcut, used when individuals need to decide amidst limited attention and limited processing capacity.
- "rule of thumb"
- People cannot analyze all contingencies and try to economize mental resources.

# Heuristics

- Heuristics have **evolutionary foundation**. Evolutionary forces have equipped us with a good set to meet the challenges of survival.
  - Survival, but might not be optimal
  - Heuristics have been part of our toolkit **for centuries**, while many of the problems that we must deal with in a **financial realm** are recent.
  - Heuristics used outside of their natural domain, may stumble.

# "Familiarity" Heuristics

- People are more likely to accept a gamble if they feel they have a better understanding of the relevant context, that is, if they feel more competent.

our comfort zone / tested water

# Familiarity

Besides: <sup>^</sup>Prb & outcome of gamble

- **The competence hypothesis** (Heath & Tversky, 1991): The willingness to bet on an uncertain event depends not only on the estimated likelihood of that event and the precision of that estimate; it also depends on one's general knowledge or understanding of the relevant context
- More specifically, **the competence hypothesis** proposes that, holding judged probability constant, people prefer to bet in a context where they consider themselves knowledgeable or competent than in a context where they feel ignorant or uninformed.

# Familiarity

- Our feeling of **competence** in a given context is determined **by what we know relative to what can be known.**
- Thus, it is enhanced by **general knowledge**, **familiarity**, and **experience**, and is diminished, for example, by calling attention to relevant information that is not available to the decision maker, especially if it is available to others.

# Familiarity

- Our brains take shortcut to make us feel calm with the familiar.
- **Familiarity** might help explain why investors are sometimes willing to forego the advantage of diversification and concentrate on a small number of companies (Blume, Crockett, and Friend, 1974) with which they are presumably familiar.

Blume, Crockett, and Friend, 1974, "Stock Ownership in the United States: Characteristics and Trends," Survey of Current Business

Kaplan, Elle, 2017, "The Familiarity Heuristic: Why Most Investors Make This One Mistake"  
<https://www.lexioncapital.com/familiarity-heuristic-investors-make-one-mistake/>



# Familiarity vs. Ambiguity Aversion

- Recall the concept of ambiguity aversion, Heath and Tversky (1991) argue that in the real world, ambiguity aversion has much to do with how competent an individual feels he is at assessing the relevant distribution as well.
- Ambiguity aversion over a bet can be strengthened by highlighting subjects' feelings of **incompetence**.



"home bias"





# Familiarity vs. Ambiguity Aversion

- In situations where people feel especially competent in evaluating a gamble, the opposite of ambiguity aversion, a "preference for the familiar", has been observed.





# Familiarity & Ambiguity Aversion

- Ambiguity and familiarity offer a simple way of understanding **insufficient diversification**.
- Investors may find their national stock markets more familiar or less ambiguous than foreign stock indices;
  - they may find firms situated close to them geographically more familiar than those located further away;
  - they may find their employer's stock more familiar than other stocks.

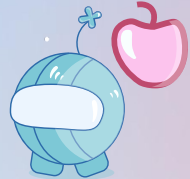


# Familiarity & Ambiguity Aversion

- Since familiar assets are attractive, people invest heavily in those, and invest little or nothing at all in ambiguous assets.
- Their portfolios therefore appear undiversified relative to the predictions of standard models that ignore the investor's degree of confidence in the probability distribution of a gamble.



# Thanks!



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