Managerial Decision Making: Themes and Goals of this Course Session 1

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MDM Course Goal: keep you out of this book!

Goals of MDM

• **Thinking and deciding** is the primary skill of business people
• **My Claim: We (humans) make predictable decision errors.**
  - Goal 1: recognizing and categorizing these errors
    » Hard to fix if you don’t know it exists . . .
  - Goal 2: Improving our decision making
    » Paradigms, Diagnostic Questions, and Tools

Modes of Analysis in MDM

• **Descriptive:** how do people make decisions
  - We’ll focus on this, what we actually DO and how we form judgments
    » how people choose things: what/how do they buy?
    » finance: applications?
    » When do people take risks
• **Normative:** how should people make decisions
  - Rational, Maximizing, Systematic, Controlled
• **Prescriptive:** how to fix errors
  - How can we help people (including ourselves!) make better decisions?

Why do we make decision errors?

• First Answer: we don’t have “the goods”
  - story of Isaac Newton

You’re (probably) no Isaac Newton

• “Isaac Newton, the father of classical physics, was given a mathematical problem by the Royal Society. The problem, which had been tackled by best minds in Britain for a number of months, was to find the formula that described the shape of the curve of a hanging string.
  • Newton received the problem in the morning and sat at his bedside, completely still and blotting out the rest of the universe, until he’d found the answer.
  • By dinner time, Newton had not only solved the problem, he had also developed and applied differential calculus.”
    — from Pumping Iron
Why do we make decision errors?

- First Answer: we don’t have “the goods”
  - You’re (probably) no Isaac Newton
  - A fix? The prognosis is not so good . . .
- Second Answer: most of us are pathetic probabilists

Quiz 1!

- Linda is 31 years old, single, outspoken, and very bright. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in antinuclear demonstrations.

Choose the most likely alternative:

- A) Linda is a bank teller
- B) Linda is a bank teller and is active in the feminist movement

People choose this more than 80% of the time, why?

Maybe, but probably not . . .

- “The odds of a meltdown are one in 10,000 years.”
  - Vitali Skylarov, Minister of Power and Electrification in the Ukraine, two months before the Chernobyl accident

Conjunctivitis

Conjunctivitis: the excessive reliance on what is representative, and the unwarranted appeal of detailed scenarios.

Maybe, but probably not . . .

- Before the space shuttle Challenger exploded on the 25th shuttle mission, NASA’s official launch risk estimate was 1 catastrophic failure in 100,000 launches.
  - . . . equivalent to launching the shuttle once per day and expecting to see only one accident in three centuries.
  - P.S. NASA has now had 2 failures in 125 launches . . . hmmm . . .

Conjunctivitis in Takeovers

- “There is common agreement that the takeover wave of the late 80s was economically debilitating for most buyers.”
  - from Sense and Nonsense in Corporate Finance

- A decision-making goof:
  - Spreadsheet Disease — “no one estimate for any particular line item in the financials was all that outrageous, but when you added it all up, it was pure “pie in the sky”
Quiz 2!

- Mary is quiet, studious, and very concerned with social issues. While an undergraduate at Berkeley she majored in English literature as well as environmental studies.
- Which of the following is most probable?:
  - Mary is a librarian
  - Mary is a librarian and a member of the Sierra Club
  - Mary works in the banking industry

Misuse of Base Rates

- **Base Rate**: the statistical history (average) of decisions like this one
- We (often) ignore base rates. Why?
- Decision makers are "excessively prone to treat problems as unique, neglecting the statistics of the past."
- **Good Rule-of-Thumb**: When in doubt, use the base rate, when not in doubt, still use it!

Why do we make decision errors?

- First Answer: we don’t have “the goods”
- story of Isaac Newton
- A fix? The prognosis is not so good
- Second Answer: most of us are pathetic probabilists
- Problems with Base Rates, but there is more . . .
- Third Answer: decisions are complex, with an overload of available info
- So much information, so little time . . .

Announcing the bad statistics contest . . .

- "Statistics are like a bikini. What they reveal is suggestive but what they conceal is vital."
  - Aaron Levenstein
- PRIZE: A bottle of good wine (or equivalent) will be given to the submitter of the best (worst!) example of statistical decision folly

Do analysts really use all these (263) numbers?
How do decision makers deal with information overload?

- **We invent heuristics:** rules of thumb
  - “The most relevant data are... PE, PE/Book, Yield.”
- **Examples of heuristics:**
  - The cockroach heuristic
  - The “plus 5” heuristic
- **Which ones do you use? In work? In daily living?**
  - We’re looking for decision simplifiers
  - Start making a list...

The Problem with Heuristics

- **Our rules of thumb often produce **Systematic** Biases**
- That is, when we estimate __________, our errors are not random. They are **predictable**.
  - Example: A bias in security analysts’ earnings forecasts?

Educating Intuition, Hogarth (2002)

- **Key Point?**
- Our intuition can be taught . . .
- MDM is basically about educating our intuitions in places where our ingrained mental models are wrong
Two types of Thinking

- Controlled and Deliberative
  - Most of your course work
    - Statistics, Finance, Accounting
  - “Analysis”
  - Can be specified after the fact
  - Controlled and Deliberative
- Example: Scientific Reasoning
  - Searching for evidence
  - Evaluating alternative explanations
  - Rejecting bad alternatives

Two types of Thinking

- Automatic
  - “Intuition”, “Gut Feel”
    - The accumulated knowledge that forms our ready reactions to decision problems
  - Not easy to specify after the fact, not transparent
- Example: Driving a car
  - Anticipating (the light will turn red)
  - Reacting (braking to avoid collision)
  - We can do other things at the same time . . .

“When to Trust Your Gut”

- What key point or points do you accept or reject in this article?
- Why/when do we rely on our intuition?
- Where does our intuition come from?
Charlie Munger: Elementary Wisdom . . .

- Key points of Charlie’s lecture?
- What does he mean by “mental models”?
- Grandma’s rule
- “You’ve got to have multiple models…”
  - “80 or 90” !!!$$##!!! Is that a lot?
  - Permutations and combinations . . .
  - Braun’s Five W’s
  - Psychology: “an ungodly important subject”
    - “A man’s got to know his limitations . . .”
    - “play within your own circle of competence”

What should the Board do?

- CFO Rawson:
  - “…America Today is not a good investment to maximize shareholder value. We should cut losses and turn off the presses.
- CEO Harcum:
  - “…it’s not about short-term accounting numbers…It’s in the best interest of the shareholders that we continue to fight for our vision…”

Models of Finance Knowledge

- Plan for the Case
  - Case facts?
  - Who’s right? What should the Board do?
  - Lastly, what’s the point?
    - What do we learn from this case?

What do YOU think?

Let’s evaluate the arguments of the CFO and the CEO

Same information? Different opinions?

- Do the CFO and the CEO have the same information about America Today?
- Do they use the same information when addressing the board?
**What is framing?**
- Defining a problem . . .
- “A problem well stated is a problem half solved.” – John Dewey

**Example:**
- Remember Encyclopedia Britannica?

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**MDM: Key Concepts so far**

- Base Rates
- Heuristics
- Intuition vs. Analysis
- Framing

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**MDM: Two Simultaneous Streams**

- Descriptive and Normative
- Prescriptive

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**4 Stages of the Decision Process**

{ expansive }          { convergent }

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**Tomorrow . . .**

- I’ll talk about Course “Details”
  - See the Course Web Site for most of them
    - Go to Tuck Streams, then to Web page, bookmark it
- Good decision makers are creative . . .
  - Creativity can be taught! DO the exercises
- Good decision makers know how to frame problems well . . .
  - Be conscious of how you frame problems
    - More on this tomorrow
- If you ever miss handouts, Robin will have them . . . Tuck 309B

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**Tuck 309B**