What is "Value"?

Summer 2003

What is "Value"?

- Which outcomes count?
- How do we count outcomes?
- Loss aversion
- Endowment effects

Boundaries: What's Included?

- Situation A: You have decided to see a play where admission is $50 per ticket, but you have not yet purchased the ticket. As you enter the theater, you discover that you have lost $50 from your wallet. Would you still pay $50 for a ticket (assuming you still have enough cash)?   97%

- Situation B: You have decided to see a play and bought a ticket for $50. As you enter the theater, you discover that you have lost the ticket. The seat was not marked and the ticket cannot be recovered. Would you pay $50 for another ticket (assuming you still have enough cash)? (Q#1)   58%

Mental Accounts

- I won't pay $100 for the ticket because I have exhausted my "ticket account"

- A major company had to choose between buying and leasing an expensive mainframe computer. They analyzed the numbers and decided to buy. The shipping company they used went broke before the computer could be delivered. They then decided to lease, saying "We didn't want to pay shipping twice."

- What if stakeholders (e.g., your boss) won't ignore sunk costs?

What Should We Include?

- We've mentioned reputation (customer loyalty), risk, career risk
- Many companies now use a "Balanced Scorecard" approach to include multiple factors such as Financial, Customer, Business Processes, and Learning/Growth
- Harley-Davidson: "preserve the brand"
- Even if we agree on what to include, how do we measure performance?

Buying Insurance?

- You must choose one and only one of the following:

  A. A 1 out of 100 chance of losing $1,000

- B. Buy insurance for $10 to protect you from this loss   63%

- A. A 1 out of 100 chance of losing $1,000
- B. Lose $10 for sure (Q#8)   60%

Relative Judgments

■ Suppose you have just ordered for your company a personal computer at a cost of $2,400. Unexpectedly you learn that the exact same computer is available from another vendor of equal quality at a costs of $2,000. To switch vendors would be costly in terms of man-hours, requiring about one day of a purchasing clerk's time. There would be no other costs such as delay in delivery, loss of goodwill, etc. Would you switch vendors?   63%

■ Suppose you have just ordered for your company a sophisticated superminicomputer workstation at a cost of $20,400. Unexpectedly you learn that the exact same workstation is available from another vendor of equal quality at a costs of $20,000. To switch vendors would be costly in terms of man-hours, requiring about one day of a purchasing clerk's time. There would be no other costs such as delay in delivery, loss of goodwill, etc. Would you switch vendors?
                                                                      27%

(Q#2)

What About Risk?

Optimal Strategy

EMV: $25500

Event	Probability
$30000	.5+.5(.8)=0.90
-$27000	(.5)(.2)(.33)=.033
-$9000	(.5)(.2)(.67)=.067

Using EDP

EMV: $20250

Event	Probability
$18000	0.50
$21000	0.25
$24000	0.25

Should Jeff change his strategy?

What would you do?

Is $27,000 a catastrophic loss? An embarrassment?

How Do We Value Gambles?

- EMV "invented" in 18th c. France to help nobles win at games of chance
- Yet, people find gambles attractive even if the EMV < 0, e.g., Mass Lottery
- And, people find gambles unattractive even if the EMV > 0, e.g., subsidized insurance

How Do We Value Money?

- Neoclassical economics is based on expected utility, or diminishing returns
- Explains why people reject fair gambles
- Explains the "equity premium puzzle" of buying bonds rather than stocks
- Explains why poor people and rich people, or poor companies and rich companies, would decide differently
- Doesn't explain a lot of other phenomena

Your Utility Curve

utility

Risk averse

EMV or risk neutral

Risk seeking

$ total wealth
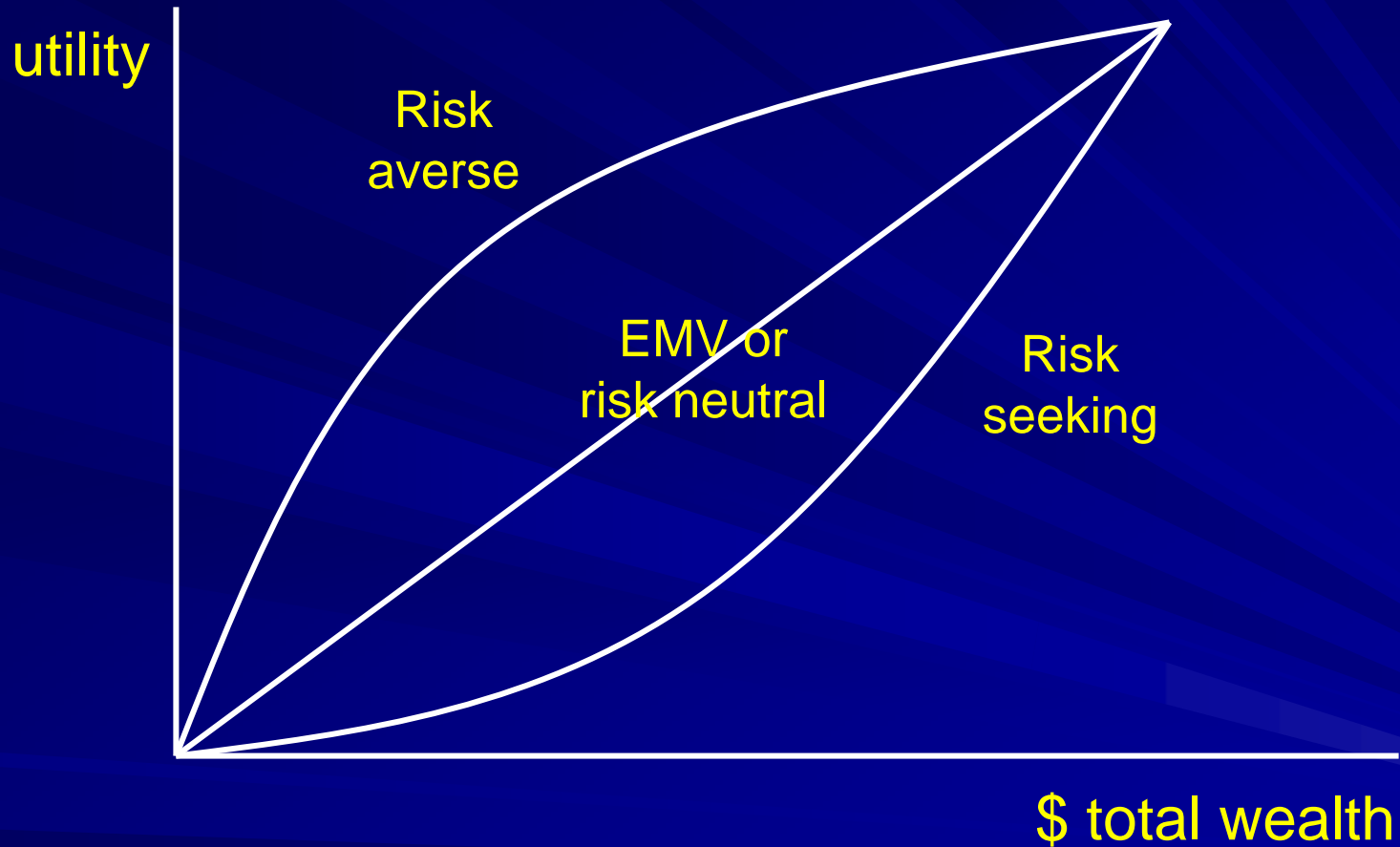
Consistent Risk Attitude?

- **Which would you choose? (Q#17)**
  - A sure gain of $240
  - 25% chance to win $1,000 and 75% to win $0

  49% gamble

- **Which would you choose?**
  - A sure loss of $240
  - 25% chance to lose $1000 and 75% to lose $0

  68% gamble

Note: EMV is gamble for #1
and don't gamble in #2

Gains and Losses ($)

Imagine that you have just learned that the sole supplier of a crucial component is going to raise prices. The price increase is expected to cost your company $6 Million. Two alternative plans have been formulated to counter the effects of the price increase. Which would you favor, A or B? (Q#4)

- If Alternative A is adopted, your company will lose $4 Million

- If Alternative B is adopted, there is a one-third chance that there will be no loss and a two-thirds chance that your company will lose $6 Million.   63% gamble

- If Alternative A is adopted, your company will save $2 Million

- If Alternative B is adopted, there is a one-third chance that $6 Million will be saved and a two-thirds chance that nothing will be saved.

16% gamble

Gains and Losses

- The United States is preparing for the outbreak of an unusual Asian flu epidemic that is expected to kill 600 people. Two alternative programs are being considered. Which would you favor?

  If Alternative A is adopted, 400 people will die.

  If Alternative B is adopted, there is a 1/3 chance that no one will die and a 2/3 chance that all 600 will die.

- The United States is preparing for the outbreak of an unusual Asian flu epidemic that is expected to kill 600 people. Two alternative programs are being considered. Which would you favor?

  If Alternative A is adopted, 200 people will be saved.

  If Alternative B is adopted, there is a 1/3 chance that all 600 will be saved and a 2/3 chance that no one will be saved.

Loss Aversion

- Losses are more painful than foregone gains
- Which is the "right" frame?
- As a copier salesman, you can provide customers with a free trial offer of 30 days use. Should you offer the base machine or the fanciest? Why?
- Credit cards: discounts vs. surcharges
- Equity premium puzzle: why do people buy bonds since stocks outperform bonds? Don't look at your portfolio too often (once a year?) and don't look at individual stocks (more later)

Even Experts are Loss Averse

- Traders took riskier positions the following day if they ended the previous day with a loss rather than a profit.

- Traders also showed a tendency to take 'long shots' in the last hour or two of trading at the end of the day if they were in loss at 3 o'clock.
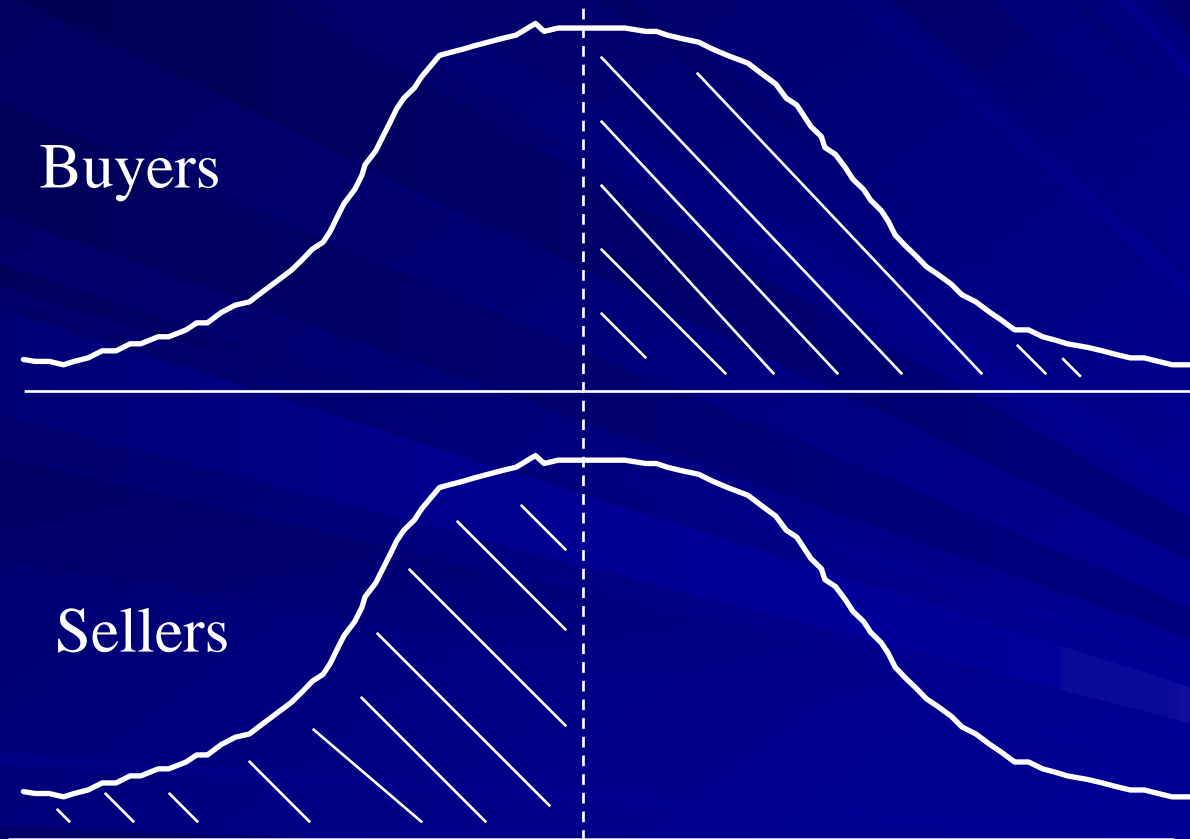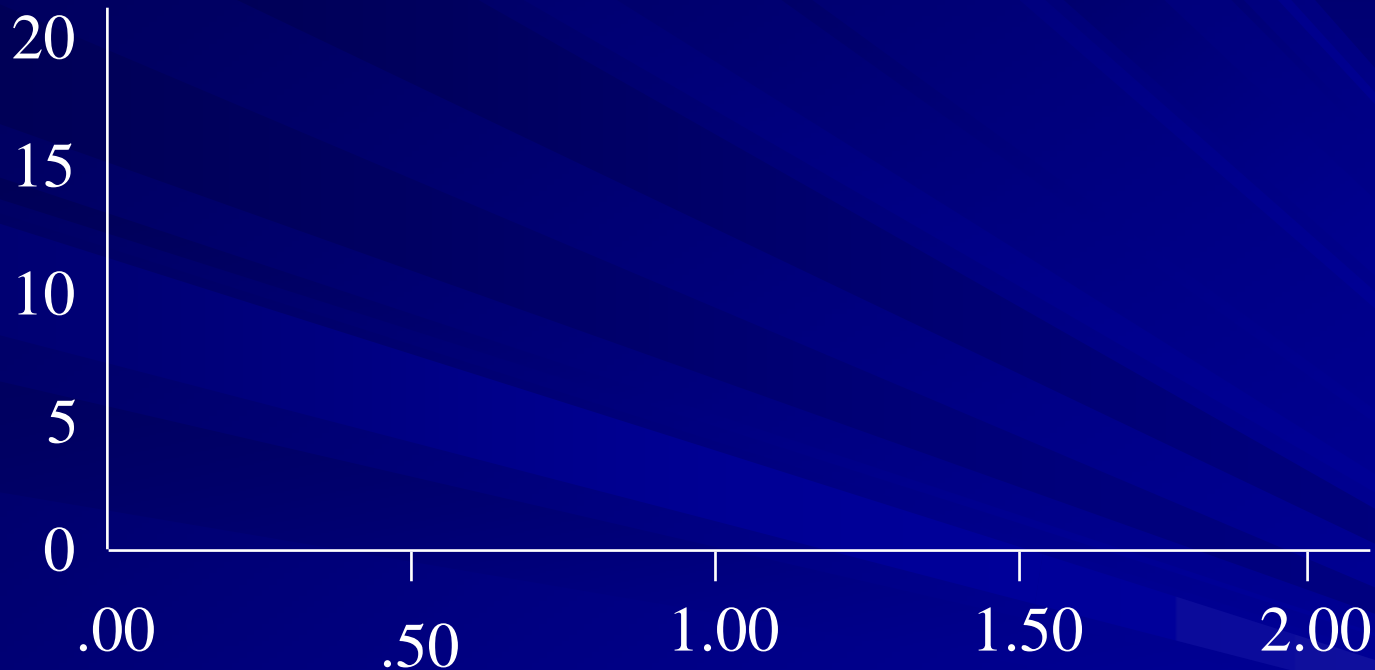
Shapira (2000)

Pricing pens….

- Those who have a pen, please examine it carefully
- Owners
  - Write the minimum price that you will charge to sell your pen
- Non-owners (buyers)
  - Write down the maximum price that you are willing to pay for a pen

Economics of the Pen Market

Buyers

Sellers

Supply and Demand


How many would sell at $0?, .50, 1.00, etc.
How many would buy at $2.00, 1.50, 1.00, etc.
Where the lines cross is the clearing price and #sales

Endowment Effects

- Duke basketball tickets: students randomly assigned to be given or not given tickets. Weeks later, both groups asked for selling/buying prices
- Owners wanted thousands for tickets
- Buyers were offering tens of dollars

Prospect Theory Value Curve

-$ +$
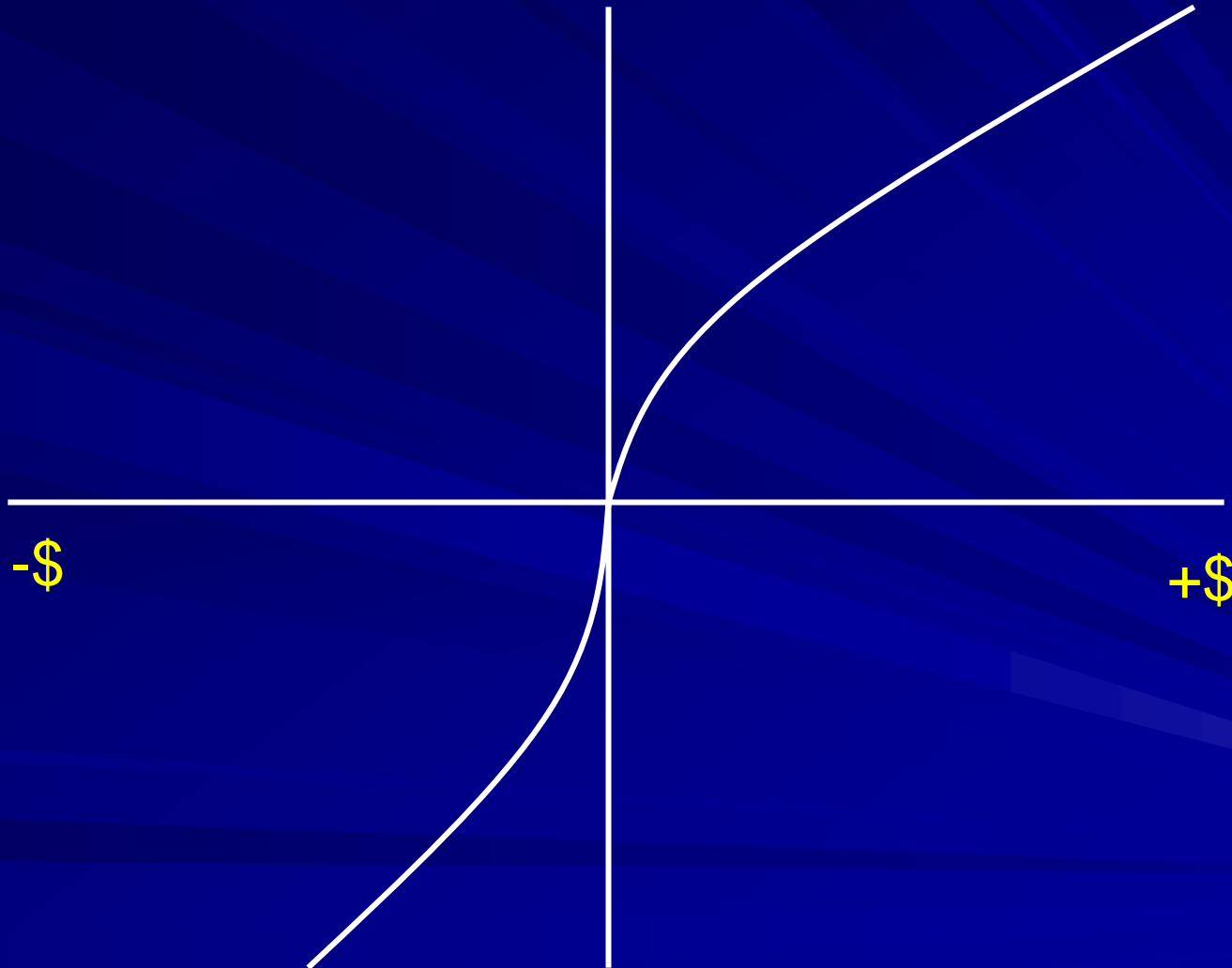
Valuing Non-Monetary Things

- Economists count everything as money
- Psychologist count everything as pleasure
- "Not everything that can counts can be counted, and not everything that can be counted counts" (A. Einstein)
- Covey (and many others) say, "start with the end in mind": What matters to you?
  - money, possessions, family, pride, challenge, legacy, status, power, others' well-being, a place in heaven
  - To make important decisions (or to lead others), you must first know yourself

Summary

- Decision trees can help us be more systematic about what we value
- People make relative judgments on the basis of comparisons to reference points
- Monetary results may be a symbol of the non-monetary things we really care about
- Tomorrow we return to probability. Make sure to read and try some problems. Your homework is due in Lecture 7!