

## **HOW DO WE MAKE CHOICES? PREFERENCES**

### **WHAT WILL YOU LEARN?**

- ▶ How do we think about choices?
- ▶ How do we describe preferences?
- ▶ What is a utility function?

## **PREFERENCES**

- ▶ We need preferences to describe choices.
- ▶ Preferences tell us how individuals evaluate the trade-offs among different choices.

## **UTILITY FUNCTION**

- ▶ Utility is an index that describes preferences.
- ▶ Utility = how you feel.
- ▶ A utility function is a systematic way of assigning an index to rank choices.

**EXAMPLE:  
UTILITY AS A FUNCTION OF WEALTH**

- For example, we can define an investor's utility as a function of wealth,  $U(W)$ .

**EXAMPLE:  
UTILITY AS A FUNCTION OF WEALTH**

## **RISK AVERSION**

### **WHAT WILL YOU LEARN?**

- ▶ What is risk aversion?
- ▶ How risk averse are you?

## **RISK AVERSION**

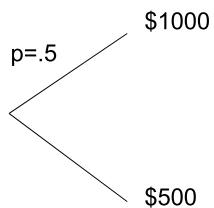
- ▶ The degree of risk aversion measures just how much an investor prefers the sure outcome to an uncertain outcome.
- ▶ The opposite of risk aversion is risk tolerance.

## **RISK AVERSION**

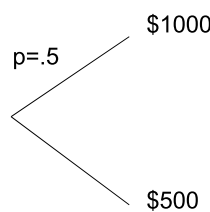
## RISK AVERSION

- ▶ A very risk averse individual has a very steep utility function – or high marginal utility.
- ▶ A very risk tolerant individual has a very flat utility function – or low marginal utility.

## WHAT'S YOUR RISK AVERSION?



## WHAT'S YOUR RISK AVERSION?



| Risk Aversion<br>Coefficient | Amount you would pay |
|------------------------------|----------------------|
| 0                            | 750                  |
| 0.5                          | 729                  |
| 1                            | 707                  |
| 2                            | 667                  |
| 3                            | 632                  |
| 4                            | 606                  |
| 5                            | 586                  |
| 10                           | 540                  |
| 15                           | 525                  |
| 20                           | 519                  |
| 50                           | 507                  |

## RISK AVERSION

- ▶ Most individuals have risk aversions between 1 and 10. It is very rare to have risk aversions greater than 10.
- ▶ Large body of experimental and survey evidence.
- ▶ There are variety of ways to measure risk aversion.
  - ▶ Questionnaires employed by financial planners

## SUMMARY

- ▶ Risk aversion is a key concept in utility functions.
- ▶ Most individuals are risk averse – they prefer the sure outcome to the risky one.
- ▶ The degree of the concavity of the utility function captures the degree of the risk aversion.