

Example

- **A Simple Game:**

I Am Ready to Give Away _____ On A Toss Of A Coin

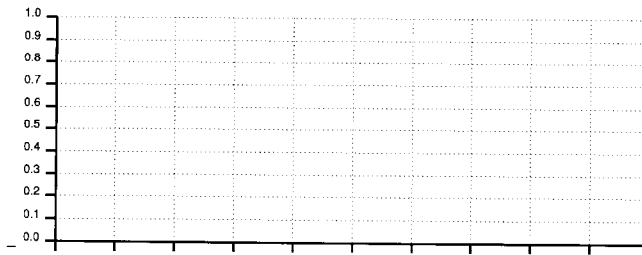
If Heads, I Give Away; If Tails, I Keep Money

Probability of Heads = 50%
Expected Value =

How Much Would You, Individually, Pay Me For The Opportunity To Play This Game?

Interpretation of Example (1)

- **Averages Clearly Not The Basis For Most People's Choice**
- **People Decide on the Basis of "Real Value" \equiv Utility**
- **Utility Typically Is Non-Linear**



Interpretation of Example (2)

- Utility Depends on Many Factors
- Utility is Measurable

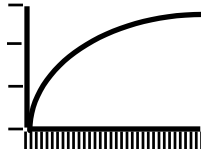
Notion of Utility

- A Transformation of Outcomes, X , To Define Their "Real Value" = Utility $U(X)$
- People Decide
 - Not On Expected Values
 - Rather, On Expected Values of $U(X)$
- To Understand a Situation
 - Transform All X -----> $U(X)$
 - Do Expected Value Calculations on $U(X)$
- Note:
 - Utilities Are Personal

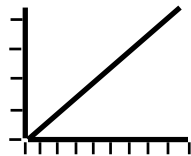
Some Conventional Definitions (1)

Unfortunately, Terms Can Be Misleading)

- **Risk Aversion**
Risk Averse if X is Preferred to a Lottery Whose Expected Value is X



- **Risk Neutral**

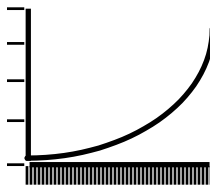


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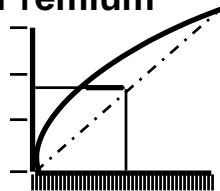
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Some Conventional Definitions (2)

- **Risk Positive (Preference, or Prone!)**



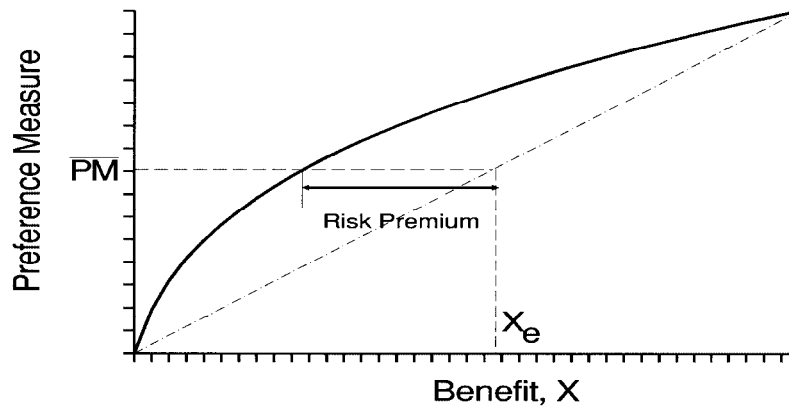
- **Risk Premium**



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Representation of “Risk Averse” Behavior



- **Semantic Caution**

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Introduction to Utility Function - $U(X)$

- **Definition:**
 $U(X)$ Is A Special $V(X)$,
Defined In An Uncertain Environment
- **It Has A Special Advantage**
Units of $U(X)$ Do Measure Relative Preference
Can Be Used In Meaningful Calculations

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