

1. A fair game is a risky prospect that has a zero risk premium. It will not be undertaken by a risk-neutral investor.
- a. True
  - b. False

Answer

False.

A risk-neutral investor does not require a positive risk premium. However, a fair game will not be undertaken by a risk-averse investor.

2. Which one of the following statements is false?
- a. Indifference curves show the risk and return combinations that give us the same level of utility.
  - b. The degree of risk aversion of an investor characterizes the slope of the indifference curve.
  - c. More risk-averse investors have less steep indifference curves.
  - d. The level of utility increases as one moves to higher indifference curves in the mean-variance space.

Answer:

The correct answer is c.

More risk-averse investors have steeper indifference curves. The more risk-averse the investor is, the greater is the level of compensation that he/she requires for the additional risk that he/she undertakes.

3. Consider the following data:

Investment	Expected Return, $E(r)$	Standard deviation ( $\sigma$ )
A	15%	25%
B	20%	30%
C	25%	45%

Which investment would you select if your preferences are represented by mean-variance utility function, and your risk aversion coefficient is equal to 4?

Answer:

The correct answer is investment A.

We compute the utility of each investment using mean-variance utility function:

For investment A:  $U_A = 0.15 - \frac{1}{2} \cdot 4 \cdot 0.25^2 = 0.03$

For investment B:  $U_B = 0.20 - \frac{1}{2} \cdot 4 \cdot 0.30^2 = 0.02$

For investment C:  $U_C = 0.25 - \frac{1}{2} \cdot 4 \cdot 0.45^2 = -0.16$

We would select investment A, since it provides us with the highest level of utility.

4. Which of the following is/are true about mean-variance preferences? (Select all that apply.)
- a. The utility score of a risky portfolio can be interpreted as the certainty equivalent rate of return.
  - b. The certainty equivalent rate is the maximum rate that a risky portfolio would need to provide.
  - c. The certainty equivalent rate is the minimum rate that a risky portfolio would have to provide.
  - d. Certainty equivalent rate is the rate that if earned with certainty would provide the same utility as that of the risky portfolio under consideration.

Answer:

The correct answers are a and d.

You can review the note on measuring risk aversion and certainty equivalent.

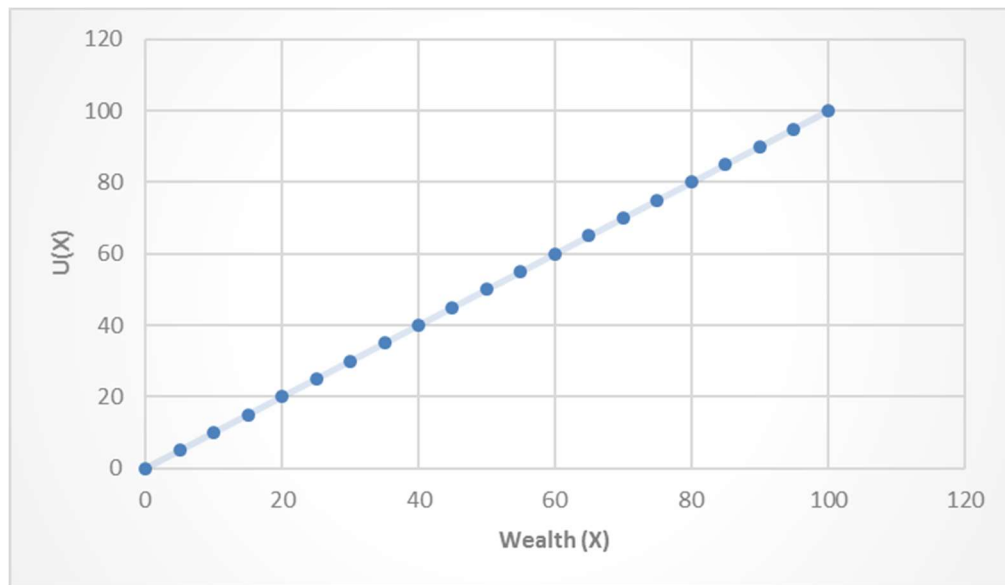
5. What does the coefficient A in the mean-variance utility function  $U = E(r) - \frac{1}{2}A\sigma^2$  represent?
- a. Investor's required return
  - b. The certainty equivalent rate
  - c. Risk premium required by the investor
  - d. Investor's degree of risk aversion

Answer:

The correct answer is d.

The level of risk aversion is different for each individual and is measured by the risk aversion coefficient A in the mean-variance utility function.

6. What is the value of the risk aversion coefficient for the mean-variance utility function shown in the graph below? Answer in whole numbers.



Answer:

The correct answer is 0.

The level of risk aversion is different for each individual and is measured by the risk aversion coefficient  $A$ . The risk neutral investor considers only the expected return and not the risk levels. In this case the utility function is linear and the risk aversion coefficient is equal to 0.