Unit 8 - Week 5: Non-Mean-Variance Portfolio Theory

Course outline

How does an NPTEL online course work?
MATLAB
Week 0: Prerequisite
Week 1: Basics of Probability Theory
Week 2: Basics of Financial Markets
Week 3: Mean-Variance Portfolio Theory
Week 4: Mean-Variance Portfolio Theory- II
Week 5: Non-Mean-Variance Portfolio Theory
- Lec 1: Utility functions and expected utility
- Lec 2: Risk preferences of investors
- Lec 3: Absolute Risk Aversion and Relative Risk Aversion
- Quiz : Assignment 5
- Feedback form
- Assignment Solution

Week 6: Non-Mean-Variance Portfolio Theory- II
Week 7: Non-Mean-Variance Portfolio Theory- III
Week 8: Optimal Portfolio and Consumption
Week 9: Optimal Portfolio and Consumption- II
Week 10: Bond Portfolio Management
Week 11: Risk Management
Week 12: Applications with market data
Live Session: Mathematical Portfolio Theory
Text Transcripts

Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-21, 23:59 IST.

1) Consider two investment opportunities A and B, for an investor with utility function $U(W) = W^2$.
Opportunity A: An investment of 100 pays 110 with probability $\frac{2}{3}$ or pays 90 with probability $\frac{1}{3}$.
Opportunity B: An investment of 100 pays 105 for certain.
Then the difference $E(U_B(W)) - E(U_A(W))$ equals :

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 250,270

1 point

2) *1 point*

Consider the following Table:

Returns	Probability (a_1)	Probability (a_2)	Probability (a_3)
-5%	0.8	0.3	0
0%	0	0.2	0
5%	0.2	0.5	1.0

If the utility function is $U(r) = r^2$, and if the expected utility of returns of assets a_1, a_2 and a_3, are $E(U_1(r))$, $E(U_2(r))$ and $E(U_3(r))$, respectively, then $\frac{E(U_1(r)) + E(U_2(r))}{E(U_3(r))}$ equals:

- 1.6
- 1.7
- 1.8
- 1.9

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.8

3) Consider an investment opportunity, where an investment of 500, either results in the gain being 100 with probability $\frac{1}{2}$, or results in the loss being 100 with probability $\frac{1}{2}$.
If the utility function is $U(W) = \ln(W)$, then the Certainty Equivalent (CE) equals :

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 485,495

1 point

4) If an investor has the utility function $U(W) = W^\gamma$ and is indifferent between receiving 1728 and 512, with equal probabilities or 1000 with certainly, then the value of γ equals :

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.30,0.38

1 point

5) Which of the following utility function represents a risk loving investor? *1 point*

- $U(W) = 1 + W^2$
- $U(W) = 3W^2$
- $U(W) = \ln(W)$
- $U(W) = 3W + 2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$U(W) = 1 + W^2$
$U(W) = 3W^2$

6) Which of the following holds in case of an investor with the quadratic utility $U(W) = 2W - 3W^2$, $\left(W \leq \frac{1}{3}\right)$. *1 point*

- Decreasing ARA and Decreasing RRA
- Increasing ARA and Decreasing RRA
- Decreasing ARA and Increasing RRA
- Increasing ARA and Increasing RRA

No, the answer is incorrect.
Score: 0
Accepted Answers:
Increasing ARA and Increasing RRA

7) If $A(W)$ is the ARA of utility function $U(W)$, then the ARA for $V(W) = a + bU(W)$ is given by : *1 point*

- $a + bA(W)$
- $A(W)$
- $a + bA'(W)$
- $bA'(W)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$A(W)$

8) Which of the following holds in case of a risk loving investor? *1 point*

- $\frac{E(U(W))}{U(E(W))} > 1$
- $U''(W) < 0$
- $\frac{E(U(W))}{U(E(W))} < 1$
- $U''(W) > 0$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{E(U(W))}{U(E(W))} > 1$
$U''(W) > 0$