

In class examples: Risk (extra problems)

13.7 A decision maker's assessed risk tolerance is \$1210. Assume that this individual's preferences can be modeled with an exponential utility function.

a Find $U(\$1000)$, $U(\$800)$, $U(\$0)$, and $U(-\$1250)$.

b Find the expected utility for an investment that has the following payoff distribution:

$$P(\$1000) = 0.33$$

$$P(\$800) = 0.21$$

$$P(\$0) = 0.33$$

$$P(-\$1250) = 0.13$$

c Find the exact certainty equivalent for the investment and the risk premium.

d Find the approximate certainty equivalent using the expected value and variance of the payoffs.

e Another investment possibility has expected value \$2400 and standard deviation \$300. Find the approximate certainty equivalent for this investment.

13.24 A bettor with utility function $U(x) = \ln(x)$, where x is total wealth, has a choice between the following two alternatives:

A Win \$10,000 with probability 0.2

Win \$1000 with probability 0.8

B Win \$3000 with probability 0.9

Lose \$2000 with probability 0.1

a If the bettor currently has \$2500, should he choose A or B?

b Repeat a, assuming the bettor has \$5000.

c Repeat a, assuming the bettor has \$10,000.

13.12 Use the certainty equivalent approach to assess your utility function for wealth over \$100 to \$20000.