

Homework Assignment 2
Fall 2021
Due Date: November 25, 2021

Question 1

Consider the following two mutually exclusive projects:

Year	Cash Flow(A)	Cash Flow(B)
0	-\$470,000	-\$40,000
1	30,000	21,000
2	60,000	15,000
3	60,000	18,000
4	670,000	11,500

Whichever project you choose, if any, you require a 16 percent return on your investment.

- If you apply the NPV criterion, which investment will you choose? Why?
- If you apply the IRR criterion, which investment will you choose? Why?
- Based on your answers in (a) through (b), which project will you finally choose? Why?

Question 2

Consider the following information about three stocks:

State of Economy	Probability of State of Economy	Rate of Return if State Occurs		
		Stock A	Stock B	Stock C
Boom	0.34	0.28	0.38	0.57
Normal	0.50	0.15	0.12	0.08
Bust	0.16	0.00	-0.27	-0.49

- If your portfolio is invested 35 percent each in A and B and 30 percent in C, what is the portfolio expected return? The variance? The standard deviation?
- If the expected T-bill rate is 3.20 percent, what is the expected risk premium on the portfolio?

Question 3

Suppose Johnson & Johnson and the Walgreen Company have expected returns and volatilities shown below, with a correlation of 22%.

	Expected Return	Standard Deviation
Johnson & Johnson	9%	15%
Walgreen Company	12%	22%

- a) What is the expected return a portfolio that is equally invested in Johnson & Johnson's and Walgreen's stock?
- b) What is the volatility (standard deviation) of this portfolio?

If the correlation between Johnson & Johnson's and Walgreen's stock were to increase,

- c) Would the expected return of the portfolio rise or fall?
- d) Would the volatility of the portfolio rise or fall?

Question 4

Consider the following information about Stocks I and II:

State of Economy	Probability of State of Economy	Rate of Return if State Occurs	
		Stock I	Stock II
Recession	0.16	0.24	-0.28
Normal	0.60	0.21	0.10
Irrational exuberance	0.24	0.09	0.45

The market risk premium is 8.5 percent, and the risk-free rate is 5 percent.

- a) Which stock has the most systematic risk?
- b) Which one has the most unsystematic risk?
- c) Which stock is "riskier"? Explain.