

Finance 366: Investments (Joseph Farizo)
Homework 3

Version: 100

Name: _____ Key: Version 100

Due: _____

Student ID: _____

Print and write your answers in the boxes below each question. On separate paper, neatly show your work, done by hand, for each question. No credit will be awarded if you provide an answer but show no work. When completed, use the Adobe Scan app to take a picture and save as a single PDF file with this as the first page. Save the file as V# where the # is your version number from the top right of this page. Example: "V101.pdf" if you have Version 101. Upload to <https://josephfarizo.com/assignments.html>. Correct answers are important, only minimal partial credit is awarded.

Question 1 The chances of a recession, normal growth, and expansion are 23%, 60%, and 17% respectively. A stock fund returns -9%, 9%, and 15%, respectively, in each of these scenarios. A bond fund returns 4%, 6%, and -4%, respectively, in each of these scenarios. What is the correlation coefficient between these two risky assets? Present your final answer to at least 4 decimal places.

CORR = -0.2825

Question 2 You have a portfolio of two risky assets. The stock fund has an expected return of 24%, while the bond fund has an expected return of 9%. The standard deviations for the stock and bond funds are 24% and 12%, respectively. The covariance between the funds is 0.00167. What is the standard deviation of this portfolio, given you invest 28% in the stock fund?

Port STDEV = 11.249%

Question 3 There is a 24% chance of a recession, 60% chance of normal growth, and 16% chance of an expansion. A stock fund returns -7%, 6%, and 10%, respectively, in each of these scenarios. A bond fund returns -2%, 5%, and 1%, respectively, in each of these scenarios. The correlation coefficient between these two risky assets is 0.74413. What is the covariance? Your answer should be small, so please present your final answer to at least 5 decimal places.

COV = 0.00135

Question 4 You run a regression of a stock's excess return on the market's excess return and get the following equation and R-squared: $y = 0.75x - 0.03$, $R\text{-squared} = 0.63$. What is the stock's (a) beta, (b) alpha, (c) portion of risk explained by firm-specific factors, and (d) excess return by this model if the market's excess return is 12%? Express parts b, c, and d in percentage terms.

(a) = 0.75, (b) = -0.03, (c) = 0.37, (d) = 6.00%

Question 5 You determine the optimal weights in a two-risky-asset portfolio is 44.26% in VTAPX and 55.74% in VEMAX. What is the (a) expected return, (b) risk, and (c) Sharpe ratio for the COMPLETE portfolio comprised of your two risky funds and 30% in the risk-free asset? The E(R) and SD of VTAPX is 20% and 60%. The E(R) and SD of VEMAX is 8% and 30%, and the correlation is 0.2. The risk-free rate is 1%. Give two decimal places (i.e., 50.12%).

ER = 9.62%, R.Port = 0.2387 Sharpe = 0.3611

Question 6 The expected returns on the MAPOX and PRWCX funds are 20% and 6% with standard deviations of 40% and 10%, respectively. The correlation between these funds is 0.2, and the yield on 90-day T-Bills is 1%. If you wish to construct the optimal risky portfolio of these two funds, how should you allocate your risky investment between these funds? Show at least 2 decimal places (i.e., 50.12%).

MAPOX = 18.80%, PRWCX = 81.20%

Question 7 You determine the optimal weights in a two-risky-asset portfolio is 15.50% in VTABX and 84.50% in VTRIX. What is the (a) expected return, (b) risk, and (c) Sharpe ratio for this RISKY portfolio? The E(R) and SD of VTABX is 19.00% and 50.00%. The E(R) and SD of VTRIX is 5.00% and 10.00%, and the correlation is -0.1. The risk-free rate is 1.00%. Give at least two decimal places (i.e., 50.12%).

ER = 7.17%, R.Port = 0.1088 Sharpe = 0.5671

Rate this homework from 1 to 5, with 1 being "very easy" and 5 being "very difficult." (circle one)

1 2 3 4 5

About how many minutes did you spend on this homework? (circle one)

<45 45 60 75 >75