Details and Rubric

Problems:

- Complete Chapter 5 problem, 5–2, p. 232
- Complete Chapter 6 problem, 6–7, p. 287
- Complete Chapter 6 problem 6–11, p. 287

Prepare this Assignment as a Word® document. List each question, followed by your answer.

Assignment 1: Problems		
Grading Rubric	**Points Possible**	**Points Earned**
Provides correct and complete answers for questions and problems. • Chapter 5 problem, 5–2 • Chapter 6 problem, 6–7 • Chapter 6 problem 6–11	 10 10 12	
Clearly shows the reasoning and/or calculations used to arrive at the answer or conclusion.	40	
Demonstrates excellent college-level organization and style; presents work in Excel® or Microsoft Word, showing all necessary formulas and steps.	8	
Total	80	

SELF-TEST PROBLEM — Solution Shown in Appendix A

(ST-1) Bond Valuation

The Pennington Corporation issued a new series of bonds on January 1, 1993. The bonds were sold at par ($1,000), had a 12% coupon, and will mature in 30 years on December 31, 2022. Coupon payments are made semiannually (on June 30 and December 31).

a. What was the YTM on the date the bonds were issued?
b. What was the price of the bonds on January 1, 1998 (5 years later), assuming that interest rates had fallen to 10%?
c. Find the current yield, capital gains yield, and total yield on January 1, 1998, given the price as determined in Part b.
d. On July 1, 2016 (6.5 years before maturity), Pennington's bonds sold for $916.42. What are the YTM, the current yield, and the capital gains yield for that date?
e. Now assume that you plan to purchase an outstanding Pennington bond on March 1, 2016, when the going rate of interest given its risk is 15.5%. How large a check must you write to complete the transaction? (*Hint:* Don't forget the accrued interest.)

PROBLEMS — Answers Are in Appendix B

EASY PROBLEMS 1–6

(5-1) Bond Valuation with Annual Payments

Jackson Corporation's bonds have 12 years remaining to maturity. Interest is paid annually, the bonds have a $1,000 par value, and the coupon interest rate is 8%. The bonds have a yield to maturity of 9%. What is the current market price of these bonds?

(5-2) Yield to Maturity for Annual Payments

Wilson Corporation's bonds have 12 years remaining to maturity. Interest is paid annually, the bonds have a $1,000 par value, and the coupon interest rate is 10%. The bonds sell at a price of $850. What is their yield to maturity?

(5-3) Current Yield for Annual Payments

Heath Food Corporation's bonds have 7 years remaining to maturity. The bonds have a face value of $1,000 and a yield to maturity of 8%. They pay interest annually and have a 9% coupon rate. What is their current yield?

(5-4) Determinant of Interest Rates

The real risk-free rate of interest is 4%. Inflation is expected to be 2% this year and 4% during the next 2 years. Assume that the maturity risk premium is zero. What is the yield on 2-year Treasury securities? What is the yield on 3-year Treasury securities?

(5-5) Default Risk Premium

A Treasury bond that matures in 10 years has a yield of 6%. A 10-year corporate bond has a yield of 9%. Assume that the liquidity premium on the corporate bond is 0.5%. What is the default risk premium on the corporate bond?

(5-6) Maturity Risk Premium

The real risk-free rate is 3%, and inflation is expected to be 3% for the next 2 years. A 2-year Treasury security yields 6.3%. What is the maturity risk premium for the 2-year security?

INTERMEDIATE PROBLEMS 7–20

(5-7) Bond Valuation with Semiannual Payments

Renfro Rentals has issued bonds that have a 10% coupon rate, payable semiannually. The bonds mature in 8 years, have a face value of $1,000, and a yield to maturity of 8.5%. What is the price of the bonds?

(6-6) Expected Returns: Discrete Distribution

The market and Stock J have the following probability distributions:

Probability	r_M	r_J
0.3	15%	20%
0.4	9	5
0.3	18	12

a. Calculate the expected rates of return for the market and Stock J.
b. Calculate the standard deviations for the market and Stock J.

(6-7) Required Rate of Return

Suppose $r_{RF} = 5\%$, $r_M = 10\%$, and $r_A = 12\%$.

a. Calculate Stock A's beta.
b. If Stock A's beta were 2.0, then what would be A's new required rate of return?

(6-8) Required Rate of Return

As an equity analyst you are concerned with what will happen to the required return to Universal Toddler's stock as market conditions change. Suppose $r_{RF} = 5\%$, $r_M = 12\%$, and $b_{UT} = 1.4$.

a. Under current conditions, what is r_{UT}, the required rate of return on UT stock?
b. Now suppose r_{RF} (1) increases to 6% or (2) decreases to 4%. The slope of the SML remains constant. How would this affect r_M and r_{UT}?
c. Now assume r_{RF} remains at 5% but r_M (1) increases to 14% or (2) falls to 11%. The slope of the SML does not remain constant. How would these changes affect r_{UT}?

(6-9) Portfolio Beta

Your retirement fund consists of a $5,000 investment in each of 15 different common stocks. The portfolio's beta is 1.20. Suppose you sell one of the stocks with a beta of 0.8 for $5,000 and use the proceeds to buy another stock whose beta is 1.6. Calculate your portfolio's new beta.

(6-10) Portfolio Required Return

Suppose you manage a $4 million fund that consists of four stocks with the following investments:

Stock	Investment	Beta
A	$ 400,000	1.50
B	600,000	−0.50
C	1,000,000	1.25
D	2,000,000	0.75

If the market's required rate of return is 14% and the risk-free rate is 6%, what is the fund's required rate of return?

CHALLENGING PROBLEMS 11–14

(6-11) Portfolio Beta

You have a $2 million portfolio consisting of a $100,000 investment in each of 20 different stocks. The portfolio has a beta of 1.1. You are considering selling $100,000 worth of one stock with a beta of 0.9 and using the proceeds to purchase another stock with a beta of 1.4. What will the portfolio's new beta be after these transactions?

(6-12) Required Rate of Return

Stock R has a beta of 1.5, Stock S has a beta of 0.75, the expected rate of return on an average stock is 13%, and the risk-free rate is 7%. By how much does the required return on the riskier stock exceed that on the less risky stock?