ASSIGNMENT #2

The purpose of this assignment is to solidify your understanding on the applications of the risk and return concepts and their role in valuing financial assets. The scores of this assignment will help in assessing the following learning goal of the course: "students successfully completing this course will be able to Analyze risk return characteristics to assess valuation of financial assets".

Instructions:

You are required to use a financial calculator or spreadsheet (Excel) to solve 10 problems (provided on page 4) related to the risk and return, stocks and bonds valuation. You are required to show the following 3 steps for each problem (sample questions and solutions are provided for guidance):

(i) Describe and interpret the assumptions related to the problem.

(ii) Apply the appropriate mathematical model to solve the problem.

(iii) Calculate the correct solution to the problem.

Sample Questions and Solutions

Sample Question # 1:
A company has an issue of 12-year bonds that pay 5% interest, annually. Further assume that today's required rate of return on these bonds is 7%. How much would these bonds sell for today? Round off to the nearest $1.

Solution

(i) The problem assumes that the face value of the bond is $1000. The bond will pay an annual coupon of 5% i.e., coupon or interest amount of $50 is assumed to paid every year. It also assumes that investors currently required a return of 7% on investments with similar risk characteristics. The use of bond valuation concept is appropriate to calculate the true value of these bonds. The accuracy of the solution depends on the correctness of the assumptions on face value, coupon payments and required rate of return assumption.

(ii) The use of bond valuation concept which suggests that the true value of a bond is the present value of its future coupon and face value discounted at investors required rate of return is appropriate to calculate the true value of these bonds. We are required to compute the present value (PV) which represents the true value of the bond.

(iii) FV= $1000; PMT=$50; Rate = 7%; N=12 years; Compute PV = ? = $841.15
Value of the Bond = $841.15

Sample Question # 2:

A company just paid a dividend of $1, and the dividends are expected to grow at constant rate of 4% forever. If the required return of the stockholders is 12%, what is the price of this company's stock?

Solution

(i) The problem assumes the stock will have a constant growth of 4% forever. The constant growth model is appropriate to use for this problem. The accuracy of the solution depends on the correctness of the constant growth assumption.

(ii) The constant growth model is given as: $P_0 = D_1/ (R-g)$; where

- P_0 is the current price to be calculated,
- D_1 is the next period's dividend,
- R is the required return on this stock
- g is the constant growth

D_1 needs to be calculated in order to apply this model.

(iii) D_1= $1.00 x (1+0.04) = 1.04

P_0 = 1.04/(0.12-0.04) = $13;

the stock price should be $13 based on the constant growth model.

Grading Rubric

Subcomponent	Not Submitted	Does Not Meet Expectations	Meets expectations	Exceeds Expectations
The student will make and evaluate important assumptions in identification of appropriate asset valuation variables and risk and return measures	No attempt made	Attempts to describe assumptions	Explicitly describes assumptions	Explicitly describes assumptions and provides rationale for why each assumption is appropriate. Show awareness that confidence in final conclusions is limited by the accuracy of the assumptions (e.g., provides descriptions about the assumptions of the model and its limitations; lists and describes each variable within the model)
The student will convert relevant information into various mathematical forms (e.g., equations, graphs, words)	No attempt made	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate	Completes conversion of information into mathematical portrayal	Relevant information is expressed in an insightful mathematical portrayal in a way that contributes to a further or deeper understanding (e.g., correct variables are selected and the mathematical model is portrayed with the correct variables)
The student will calculate risk and return measures and asset values	No attempt made	Calculations are attempted but are both unsuccessful and not comprehensive	Calculations are attempted to solve the problem but not comprehensive	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (e.g., provides insights on the interpretation of the calculated value of an asset such as the value of a stock is valid only within the context of the model and its limitations)

The above rubric will be applied to grade each question and the average score will be calculated for each subcomponent.

Assignment Problems

1. Thermopurr Corp. just issued a series of 25-year $1,000 par bonds. The bonds pay 7.5% interest on an annual basis. If the market's required rate of return is 6.5%, how much should these bonds sell for today? Round to two decimal places.

2. Hackworth Company's common stock just paid a dividend of $8.25 at the end of last year. If investors require a 20% return and the annual growth rate in dividends is expected to be 12% in the foreseeable future, what should the market price of the stock be? Round to two decimal places.

3. Ashode Corp. common stock currently sells in the open market for $16.75. The stock is expected to pay a dividend of $2.25 per share at the end of next year, which are expected to grow at a constant rate of 5% indefinitely. What is the expected rate of return on Ashode common stock? Submit your answer as a percentage and round to two decimal places.

4. One year ago, Daniel bought 500 shares of Bliona Inc. stock for $8.00 per share. Over the year, Bliona Inc. paid out a total of $0.50 per share in dividends on its common stock. Today Daniel sells all of his shares at the current market price, $9.75 per share. What is his holding period return over the year? Submit your answer as a percentage and round to two decimal places.

5. Sightline Corp. has a current issue of $1,000 par value 4.8% coupon bonds maturing in 12 years. It is currently selling in the market for $1,025. What is the semiannual interest payment? Round to two decimal places.

6. McKentley Inc. common stock is currently selling for $64.00 per share. The stock just paid a dividend of $5.00 per share at the end of last year. Dividends are expected to grow at a rate of 6% annually. What is the expected rate of return of the common stock? Submit your answer as a percentage and round to two decimal places.

7. Analysts predict that over the next year, Thete, Inc.'s common stock has a 30% chance of returning 10%, a 45% chance of returning 18%, and a 25% chance of returning 24%. What is the expected rate of return on Thete, Inc.'s common stock? Submit your answer as a percentage and round to two decimal places.

8. Analysts predict that over the next year, Thete, Inc.'s common stock has a 30% chance of returning 10%, a 45% chance of returning 18%, and a 25% chance of returning 24%. What is the standard deviation of returns on Thete, Inc.'s common stock? Submit your answer as a percentage and round to two decimal places.

9. Lastimar Inc. $1,000 par value corporate bonds were issued four years ago and have 16 years left to maturity. The bonds offer a 5% coupon rate paid semiannually and are currently selling in the market for $875. What is the bond's annual yield to maturity? Submit your answer as a percentage and round to two decimal places.

10. Consider a 14-year bond with face value $1,000 that pays a 6.6% coupon semiannually and has a yield-to-maturity of 7.2%. What is the approximate percentage change in the price of bond if interest rates in the economy are expected to increase by 0.80% per year? Submit your answer as a percentage and round to two decimal places. (Hint: What is the expected price of the bond before and after the change in interest rates?)