Financial Management

ADM2350A

Quiz #2 Fall 2019

Time Permitted: 70 Minutes

Student Name and Number: _____

Instructions:

- Answer all 3 questions in the space provided on the question sheet.
- This quiz has a total of 6 pages including a blank page that you can use as scrap paper and will not be marked
- You may use a financial and/or scientific calculator
- You are allowed to bring a single sided (8.5x11 inches) cheat sheet on which you may write down whatever you wish
- Show your work clearly for questions 2 – 3.
- If you are unclear as to the meaning of a question please state explicitly any assumptions that you are making.
- Good luck!

Question	**Marks Earned**
Question 1	/16
Question 2	/7
Question 3	/7
Total marks	**/30**

Question 1) Multiple Choice Questions (2 marks each)
For each of the following, please pick the best answer among a, b, c, d.

1. Diversification is the most effective when:

a. You combine securities with positive Beta
b. Correlations between assets approach +1
c. Asset returns are moving in opposite directions
d. Less assets are added into a portfolio

Solution: C

2. Suppose that your friend has decided to construct a portfolio that will contain stocks X and Y. The standard deviations of stock X and stock Y are 12% and 16% respectively, and the correlation between stock X and stock Y is 0.6. Your friend has decided to put 40% of his money on stock X and the rest on stock Y. What is the standard deviation of his portfolio?
a. 8.59%
b. 9.03%
c. 10.88%
d. 13.06%

Answer: D

3. You are contemplating investing in two stocks A and B that have an expected return of 15% and 10% respectively. If your target expected return from your portfolio is 13%, what should be the weight of your investment in A?

a. 0.33
b. 0.50
c. 0.60
d. It cannot be determined from the information above

Answer: c

4 Suppose Bond A has a face value worth $1000. It pays a coupon on a semi-annual basis, and the annual coupon rate is 8%. The YTM is 10%. The bond will mature 10 years from now. Suppose that you buy Bond A today. After 6 months from the time of buying the bond, you decide to sell the bond (you sell the bond after you receive the first coupon). Right before you sell the bond, the YTM goes up to 12%. What is your six-month holding period return (percentage return)?

A. -6.69%
B. -2.04%
C. -1.27%
D. 0.64%

Solution A

5. What is the YTM of a semiannual coupon bond with face value $1,000, price $990, coupon rate 9%, and maturity 12 years?

a. 4.57%
b. 5.14%
c. 9.14%
d. 10.28%

Solution: C

6. If its yield to maturity is more than its coupon rate, a bond will sell at a _____.

a. premium
b. discount
c. par
d. It cannot be determined from the information above

Solution: B

7) All of the following are true about corporate bonds *except*:

a. Corporate bonds have interest rate risk and default risk.
b. Special features such as Seniority and Covenants can alter corporate bond risk.
c. Corporate bondholders possess proxy voting rights in the firm.
d. Agency problems can arise because firms pay credit rating agencies to rate their bonds.

Solution C

8) Assume stock A has an expected return of 13% and beta = 1.2. If the risk-free rate is 6%, what is the market expected rate of return?

a. 8.87%
b. 9.36%
c. 10.07%
d. 11.83%

Solution D

Question No 2 (7 marks)

Consider the following information:

State of the Economy	Probability	Return of the Market Portfolio	Return of Stock A
Normal	60%	8%	12%
Expansion	40%	14%	16%

You have invested 30% of your savings in the risk-free asset, 40% in stock A, and the rest of your savings in the market portfolio. You also know that the covariance between A and the Market portfolio is 0.0005. What is the beta of your portfolio that includes the three assets?

SOLUTIONS

Step 1: Calculate the expected rate of return of the Market Portfolio (you do not need to compute the expected return of stock A)

Expected rate of return of the Market portfolio = 0.6 (8) + 0.4 (14) = 10.4%

Step 2: Calculate the variance of the Market portfolio

Variance = $0.6 (0.08 - 0.104)^2 + 0.4 (0.14 - 0.104)^2 = 0.000864$

Step 3: Calculate the portfolio beta

Beta of A = 0.0005 / 0.000864 = 0.5787

Beta of Market Portfolio = 1

Beta of the risk-free asset = 0

Portfolio Beta = (0.3 * 0) + (0.4 *0.5787) + (0.3 * 1) = 0.53148

Question No 3 (7 marks)

A common stock is expected to pay its first dividend of $10 in three year (t=3). After that the dividend is expected to grow at 15% for three years (t=4, t=5, t=6), and after t=6 the dividend will decrease by 2% per year in perpetuity. If the discount rate is 10%, what is the stock price today?

Solution

D3 = $10

D4 = $10*(1+0.15) = $11.5

D5 = $10*(1+0.15)^2 = $13.225

D6 = $10*(1+0.15)^3 = $15.21

D7 = $10*(1+0.15)^3*(1-0.02) = $14.91

$$P_0 = \sum_{n=1}^{N} \frac{\text{Div}_n}{(1+r)^n} + \frac{\left(\frac{\text{Div}_{N+1}}{r-g_2}\right)}{(1+r)^N}$$

$$P_0 = \frac{\$10}{(1+0.1)^3} + \frac{\$11.5}{(1+0.1)^4} + \frac{\$13.225}{(1+0.1)^5} + \frac{\$15.21}{(1+0.1)^6} + \frac{\$14.91}{(0.1-(-0.02))} * \frac{1}{(1+0.1)^6}$$

$$= 102.2748$$

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