# Financial Management

## Quiz

Date: June 11, 2020
09:10 – 11:00 (110 mins)

Total points:    no.1 – no. 29 (4 points for each, total: 116 points, 13 pages)

Calculator and formula sheet are allowed. Please have lecture notes, textbook, and any other related documents in your backpack.

Good luck!

*Please check the appropriate box below. Otherwise, your answer will not be counted!!*

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
| A |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| B |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| C |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| D |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| E |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |

|   | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
|---|----|----|----|----|----|----|----|----|----|
| A |    |    |    |    |    |    |    |    |    |
| B |    |    |    |    |    |    |    |    |    |
| C |    |    |    |    |    |    |    |    |    |
| D |    |    |    |    |    |    |    |    |    |
| E |    |    |    |    |    |    |    |    |    |

Name: _____

Student ID: _____

Major: _____

1. The relationship between nominal interest rates on default-free, pure discount securities and the time to maturity is called the:
   A. liquidity effect.
   B. Fisher effect.
   C. term structure of interest rates.
   D. inflation premium.
   E. interest rate risk premium.

2. A bond with a 6% coupon that pays interest semi-annually and is priced at par will have a market price of _____ and interest payments in the amount of _____ each.
   A. $1,006; $60
   B. $1,060; $30
   C. $1,060; $60
   D. $1,000; $30
   E. $1,000; $60

3. The value of a 25 year zero-coupon bond when the market required rate of return is 10% (semiannual) is ____.
   A. $87.20
   B. $92.30
   C. $95.26
   D. $98.31
   E. None of these

   $1,000/(1.05)50 = $87.20

4. The bonds issued by Manson & Son bear a 6% coupon, payable semiannually. The bond matures in 8 years and has a $1,000 face value. Currently, the bond sells at par. What is the yield to maturity?

A. 5.87%

B. 5.97%

C. 6.00%

D. 6.09%

E. 6.17%

$$\$1,000 = \frac{.06 \times \$1,000}{2} \times \left\{ \frac{1 - \left[ 1/(1 + \frac{r}{2})^{8 \times 2} \right]}{\frac{r}{2}} \right\} + \frac{\$1,000}{(1 + \frac{r}{2})^{8 \times 2}};$$

This cannot be solved directly, so it's easiest to just use the calculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that your answer is correct.

| Enter | 8×2 | /2 | -1,000 | 60/2 | 1,000 |
|-------|-----|-----|--------|------|-------|
|       | N   | I/Y | PV     | PMT  | FV    |

Solve for I/Y = 3 × 2 = 6

Answer is 6.00%

5. Chocolate and Rum, Inc. offers a 7% coupon bond with semiannual payments and a yield to maturity of 7.73%. The bonds mature in 9 years. What is the market price of a $1,000 face value bond?

A. $953.28

B. $963.88

C. $1,108.16

D. $1,401.26

E. $1,401.86

$$P = \frac{.07 \times \$1,000}{2} \times \left\{ \frac{1 - \left[ 1/(1 + \frac{.0773}{2})^{9 \times 2} \right]}{\frac{.0773}{2}} \right\} + \frac{\$1,000}{(1 + \frac{.0773}{2})^{9 \times 2}};$$

P = $447.977 + $505.305 = $953.282 = $953.28 (rounded)

| Enter | 9×2 | 7.73/2 |         | 70/2 | 1,000 |
|-------|-----|--------|---------|------|-------|
|       | N   | I/Y    | PV      | PMT  | FV    |
| Solve for |  |        | -953.28 |      |       |

6.    Moonhigh, Inc. has a 5%, semiannual coupon bond with a current market price of $988.52. The bond has a par value of $1,000 and a yield to maturity of 5.29%. How many years is it until this bond matures?

A.  4.0 years

**B.**  4.5 years

C.  6.5 years

D.  8.0 years

E.  9.0 years

$$\$988.52 = \frac{.05 \times \$1,000}{2} \times \left\{ \frac{1 - \left[ 1/(1 + \frac{.0529}{2})^{t \times 2} \right]}{\frac{.0529}{2}} \right\} + \frac{\$1,000}{(1 + \frac{.0529}{2})^{t \times 2}} \; ;$$

The easiest way to solve this problem is using financial calculator. You can then use the calculator answer as the time period in the formula just to verify that your answer is correct.

| Enter | | 5.29/2 | -988.52 | 50/2 | 1,000 |
|---|---|---|---|---|---|
| | N | I/Y | PV | PMT | FV |
| Solve for | 9 | | | | |

The number of six-month periods is 9. The number of years is 4.5.

7.    Your firm offers a 10-year, zero coupon bond. The yield to maturity is 8.8%. What is the current market price of a $1,000 face value bond?

**A.**  $430.24

B.  $473.26

C.  $835.56

D.  $919.12

E.  $1,088.00

$$P = \frac{\$1,000}{(1 + .088)^{10}} \; ; P = \$430.24$$

| Enter | 10 | 8.8 | | | 1,000 |
|---|---|---|---|---|---|
| | N | I/Y | PV | PMT | FV |
| Solve for | | | -430.24 | | |

8.    A bond that pays interest annually yields a 7.25% rate of return. The inflation rate for the same period is 3.5%. What is the real rate of return on this bond?

    A.    3.50%
    B.    3.57%
    C.    3.62%
    D.    3.72%
    E.    3.75%

    $(1 + .0725) = (1 + r) \times (1 + .035)$; $r = 3.62\%$

9.    Next year's annual dividend divided by the current stock price is called the:

    A.  yield to maturity.
    B.  total yield.
    C.  dividend yield.
    D.  capital gains yield.
    E.  earnings yield.

10.    Fred Flintlock wants to earn a total of 10% on his investments. He recently purchased shares of ABC stock at a price of $20 a share. The stock pays a $1 a year dividend. The price of ABC stock needs to _____ if Fred is to achieve his 10% rate of return.

    A.  remain constant
    B.  decrease by 5%
    C.  increase by 5%
    D.  increase by 10%
    E.  increase by 15%

11.  Angelina's made two announcements concerning its common stock today. First, the company announced that its next annual dividend has been set at $2.16 a share. Secondly, the company announced that all future dividends will increase by 4% annually. What is the maximum amount you should pay to purchase a share of Angelina's stock if your goal is to earn a 10% rate of return?

A. $21.60
B. $22.46
C. $27.44
D. $34.62
E. $36.00

$$P_0 = \frac{\$2.16}{.10 - .04} \; ; P_0 = \$36.00$$

12.  Leslie's Unique Clothing Stores offers a common stock that pays an annual dividend of $2.00 a share. The company has promised to maintain a constant dividend. How much are you willing to pay for one share of this stock if you want to earn a 12% return on your equity investments?

A. $10.00
B. $13.33
C. $16.67
D. $18.88
E. $20.00

$$P_0 = \frac{\$2.00}{.12} \; ; P_0 = \$16.67$$

13.  Martha's Vineyard recently paid a $3.60 annual dividend on its common stock. This dividend increases at an average rate of 3.5% per year. The stock is currently selling for $62.10 a share. What is the market rate of return?

A. 2.5%
B. 3.5%
C. 5.5%
D. 6.0%
E. 9.5%

$$\$62.10 = \frac{\$3.60 \times (1 + .035)}{R - .035} \; ; R = 9.5\%$$

14. Weisbro and Sons' common stock sells for $21 a share and pays an annual dividend that increases by 5% annually. The market rate of return on this stock is 9%. What is the amount of the last dividend paid by Weisbro and Sons?

    A. $.77
    **B.** $.80
    C. $.84
    D. $.87
    E. $.88

$$\$21 = \frac{D_0 \times (1+.05)}{.09-.05} \; ; D_0 = \$.80$$

15. The Merriweather Co. just announced that it will pay a dividend next year of $1.60 and is establishing a policy whereby the dividend will increase by 3.5% annually thereafter. How much will one share be worth five years from now if the required rate of return is 12%?

    A. $21.60
    **B.** $22.36
    C. $23.14
    D. $23.95
    E. $24.79

$$P_5 = \frac{\$1.60 \times (1+.035)^5}{.12-.035} \; ;$$
P5 = $22.36

16. The Lighthouse Co. is in a downsizing mode. The company paid a $2.50 annual dividend last year. The company has announced plans to lower the dividend by $.50 a year. Once the dividend amount becomes zero, the company will cease all dividends permanently. The required rate of return is 16%. What is one share of this stock worth?

    **A.** $3.76
    B. $4.08
    C. $4.87
    D. $5.13
    E. $5.39

$$P_0 = \frac{\$2.00}{(1.16)^1} + \frac{\$1.50}{(1.16)^2} + \frac{\$1.00}{(1.16)^3} + \frac{\$.50}{(1.16)^4} \; ; P_0 = \$3.76$$

17. The excess return required from a risky asset over that required from a risk-free asset is called the:

    A. risk premium.
    B. geometric premium.
    C. excess return.
    D. average return.
    E. variance.

18. The average risk premium on U.S. Treasury bills over the period of 1926 to 2011 was _____%.

    A. 0.0
    B. 1.6
    C. 2.2
    D. 3.1
    E. 3.8

19. Eight months ago, you purchased 400 shares of Winston, Inc. stock at a price of $54.90 a share. The company pays quarterly dividends of $.50 a share. Today, you sold all of your shares for $49.30 a share. What is your total percentage return on this investment?

    A. -10.2%
    B. -9.3%
    C. -8.4%
    D. 12.0%
    E. 13.4%

    Total percentage return = ($49.30 - $54.90 + $.50 + $.50) ÷ $54.90 = -8.4% (loss)

20. A stock has returns of 3%, 18%, -24%, and 16% for the past four years. Based on this information, what is the 95% probability range for any one given year?

    A. -8.4 to 11.7%
    B. -16.1 to 22.6%
    C. -24.5 to 34.3%
    **D.** -35.4 to 41.9%
    E. -54.8 to 61.3%

    Average return = (.03 + .18 - .24 + .16) ÷ 4 = .0325;

    Total squared deviation = (.03 - .0325)2 + (.18 - .0325)2 + (-.24 - .0325)2 + (.16 - .0325)2

    = .00000625 + .02175625 + .07425625 + .01625625 = .112275;

    Standard deviation = √(.112275 ÷ (4 - 1) = √.037425 = .19346 = 19.346%; 95% probability range = 3.25% ± (2 × 19.346%) = -35.4 to 41.9%

21. What are the arithmetic and geometric average returns for a stock with annual returns of 4%, 9%, -6%, and 18%?

    A. 5.89%; 6.25%
    **B.** 6.25%; 5.89%
    C. 6.25%; 8.33%
    D. 8.3%; 5.89%
    E. 8.3%; 6.25%

    Arithmetic average = (.04 + .09 - .06 + .18) ÷ 4 = 6.25%; Geometric return = (1.04 × 1.09 × .94 × 1.18).25 - 1 = 5.89%

22. The return pattern on your favorite stock has been 5%, 8%, -12%, 15%, 21% over the last five years. What has been your average return and holding period return over the last 5 years?

    A. 4.5%; 6.5%
    **B.** 7.4%; 38.9%
    C. 7.4%; 7.76%
    D. 7.4%; 76.73%
    E. None of these

    Average return = (5 + 8 - 12 + 15 + 21)/5 = 37/5 = 7.4%

    HPR = [(1.05)(1.08)(.88)(1.15)(1.21)] - 1 = (1.3886) - 1 = .3886 = 38.9%

23. You just purchased some equipment that is classified as 5-year property for MACRS. The equipment cost $67,600. What will the book value of this equipment be at the end of three years should you decide to resell the equipment at that point in time?

**MACRS 5-year property**

| Year | Rate |
|------|--------|
| 1 | 20.00% |
| 2 | 32.00% |
| 3 | 19.20% |
| 4 | 11.52% |
| 5 | 11.52% |
| 6 | 5.76% |

A. $19,468.80
B. $20,280.20
C. $27,040.00
D. $48,131.20
E. $48,672.00

Book value at the end of year 3 = $67,600 - [$67,600 × (.20 + .32 + .192)] = $19,468.80

24. A project will produce an operating cash flow of $7,300 a year for three years. The initial cash investment in the project will be $11,600. The net after-tax salvage value is estimated at $3,500 and will be received during the last year of the project's life. What is the net present value of the project if the required rate of return is 11%?

A. $8,798.29
B. $9,896.87
C. $10,072.72
D. $13,353.41
E. $20,398.29

$$\text{NPV} = -\$11,600 + \frac{\$7,300}{(1+.11)^1} + \frac{\$7,300}{(1.11)^2} + \frac{\$7,300 + \$3,500}{(1+.11)^3} = \$8,798.29$$

$CF_0$       -$11,600
$C0_1$       $7,300
$F0_1$       2
$C0_2$       $10,800
$F0_2$       1
$I = 11\%$
NPV CPT
$8,798.29

25.    Jackson & Sons uses packing machines to prepare its products for shipping. One machine costs $136,000 and lasts about 4 years before it needs replaced. The operating cost per machine is $6,000 a year. What is the equivalent annual cost of one packing machine if the required rate of return is 12%? (Round your answer to whole dollars.)

A. $38,556
**B.** $50,776
C. $79,012
D. $101,006
E. $154,224

$$NPV = -\$136,000 - \frac{\$6,000}{(1+.12)^1} - \frac{\$6,000}{(1+.12)^2} - \frac{\$6,000}{(1+.12)^3} - \frac{\$6,000}{(1+.12)^4} = -\$154,224.10$$

$$\$154,224.10 = EAC \times \left\{ \frac{1-[1/(1+.12)^4]}{.12} \right\}; \ EAC = \$50,775.88 = \$50,776 \ (\text{rounded})$$

26.    Margarite's Enterprises is considering a new project. The project will require $325,000 for new fixed assets, $160,000 for additional inventory and $35,000 for additional accounts receivable. Short-term debt is expected to increase by $100,000 and long-term debt is expected to increase by $300,000. The project has a 5-year life. The fixed assets will be depreciated straight-line to a zero book value over the life of the project. At the end of the project, the fixed assets can be sold for 25% of their original cost. The net working capital returns to its original level at the end of the project. The project is expected to generate annual sales of $554,000 and costs of $430,000. The tax rate is 35% and the required rate of return is 15%.

What is the amount of the after-tax cash flow from the sale of the fixed assets at the end of this project? (Round your answer to whole dollars.)

A. $28,438
B. $37,918
**C.** $52,813
D. $60,009
E. $81,250

After-tax salvage value = .25 × $325,000 × (1 - .35) = $52,812.50 = $52,813 (rounded)

27.. You own a portfolio equally invested in a Rf asset and two stocks. If one of the stocks has a beta of 1.85 and the total portfolio is equally as risky as the market, what must be the beta for the other stock in your portfolio?

A. 1.15
B. 1.30
C. 1.55
D. 1.44
E. 2.00

28.. You have the following data on (1) the average annual returns of the market for the past 5 years and (2) similar information on Stocks A and B. Which of the possible answers best describes the historical betas for A and B?

| Years | Market | Stock A | Stock B |
|-------|--------|---------|---------|
| 1 | 0.03 | 0.16 | 0.05 |
| 2 | -0.05 | 0.20 | 0.05 |
| 3 | 0.01 | 0.18 | 0.05 |
| 4 | -0.10 | 0.25 | 0.05 |
| 5 | 0.06 | 0.14 | 0.05 |

A. bA > 0; bB = 1.
B. bA > +1; bB = 0
C. bA = 0; bB = -1.
D. bA < 0; bB = 0.
E. bA < -1; bB = 1

29.. Assume that you are the portfolio manager of the SF Fund, a $3 million hedge fund that contains the following stocks.   The required rate of return on the market is 11.00% and the risk-free rate is 5.00%.   What rate of return should investors expect (and require) on this fund?

| Stock | Amount | Beta |
|-------|--------|------|
| A | $1,075,000 | 1.20 |
| B | $675,000 | 0.50 |
| C | $750,000 | 1.40 |
| D | $500,000 | 0.75 |
|   | $3,000,000 |  |

A. 11.11%
B. 12.12%
C. 13.13%
D. 14.14%
E. 15.15%