Financial Management

FINA 2010, Semester II, 2020-2021

Assignment 8 (Solution)

15 March, 2021

1. Questions from Chapter 12 of the text book (Page 414, Concepts Review and Critical Thinking Questions)

Q3: Not necessarily, because stocks are riskier. Some investors are highly risk averse, and the extra possible return doesn't attract them relative to the extra risk.

Q4: On average, the only return that is earned is the required return—investors buy assets with returns in excess of the required return (positive NPV), bidding up the price and thus causing the return to fall to the required return (zero NPV); investors sell assets with returns less than the required return (negative NPV), driving the price lower and thus causing the return to rise to the required return (zero NPV).

Q8: Unlike gambling, the stock market is a positive sum game; everybody can win. Also, speculators provide liquidity to markets and thus help to promote efficiency.

Q9: The EMH only says, within the bounds of increasingly strong assumptions about the information processing of investors, that assets are fairly priced. An implication of this is that, on average, the typical market participant cannot earn excessive profits from a particular trading strategy. However, that does not mean that a few particular investors cannot outperform the market over a particular investment horizon. Certain investors who do well for a period of time get a lot of attention from the financial press, but the scores of investors who do not do well over the same period of time generally get considerably less attention from the financial press.

Q10:

a. If the market is not weak form efficient, then this information could be acted on and a profit earned from following the price trend. Under (2), (3), and (4), this information is fully impounded in the current price and no abnormal profit opportunity exists.

b. Under (2), if the market is not semi-strong form efficient, then this information could be used to buy the stock "cheap" before the rest of the market discovers the financial statement anomaly. Since (2) is stronger than (1), both imply that a profit opportunity exists; under (3) and (4), this information is fully impounded in the current price and no profit opportunity exists.

c. Under (3), if the market is not strong form efficient, then this information could be used as a profitable trading strategy, by noting the buying activity of the insiders as a signal that the stock is underpriced or that good news is imminent. Since (1) and (2) are weaker than (3), all three imply that a profit opportunity exists. Note that this assumes the individual who sees the insider trading is the only one who sees the trading. If the information about the trades made by company management is public information, it will be discounted in the stock price and no profit opportunity exists. Under (4), this information does not signal any profit opportunity for traders; any pertinent information the manager-insiders may have is fully reflected in the current share price.

2. Questions from Chapter 12 of the text book (Page 415, Questions and Problems)

Q13: To find the real return, we first need to find the nominal return, which means we need the current price of the bond. Going back to the chapter on pricing bonds, we find the current price is:

$P_1 = \$58(PVIFA_{5.1\%,14}) + \$1{,}000(PVIF_{5.1\%,14})$

$P_1 = \$1{,}068.85$

So the nominal return is:

$R = [(\$1{,}068.85 - 1{,}030) + 58]/\$1{,}030$

$R = .0940$, or 9.40%

And, using the Fisher equation, we find the real return is:

$1 + R = (1 + r)(1 + h)$

$r = 1.094/1.039 - 1$

$r = .0530$, or 5.30%

Q16: To calculate the arithmetic and geometric average returns, we must first calculate the return for each year. The return for each year is:

$R_1 = (\$70.20 - 63.40 + .85)/\$63.40 = .1207$, or 12.07%

$R_2 = (\$79.18 - 70.20 + .95)/\$70.20 = .1415$, or 14.15%

$R_3 = (\$75.32 - 79.18 + 1.03)/\$79.18 = -.0357$, or –3.57%

$R_4 = (\$84.18 - 75.32 + 1.11)/\$75.32 = .1324$, or 13.24%

$R_5 = (\$98.62 - 84.18 + 1.20)/\$84.18 = .1858$, or 18.58%

The arithmetic average return was:

$R_A = (.1207 + .1415 - .0357 + .1324 + .1858)/5$

R_A = .1089, or 10.89%

And the geometric average return was:

$R_G = [(1 + .1207)(1 + .1415)(1 - .0357)(1 + .1324)(1 + .1858)]^{1/5} - 1$

R_G = .1062, or 10.62%

3. Standard deviation is a measure of which one of the following?
A. average rate of return
B. volatility
C. probability
D. risk premium
E. real returns

4. The average compound return earned per year over a multi-year period is called the _____ average return.
A. arithmetic
B. standard
C. variant
D. geometric
E. real

5. Which one of the following statements best defines the efficient market hypothesis?
A. Efficient markets limit competition.
B. Security prices in efficient markets remain steady as new information becomes available.
C. Mispriced securities are common in efficient markets.
D. All securities in an efficient market are zero net present value investments.
E. Profits are removed as a market incentive when markets become efficient.

6. Bayside Marina just announced it is decreasing its annual dividend from $1.64 per share to $1.50 per share effective immediately. If the dividend yield remains at its pre-announcement level, then you know the stock price:
A. was unaffected by the announcement.
B. increased proportionately with the dividend decrease.
C. decreased proportionately with the dividend decrease.
D. decreased by $0.14 per share.
E. increased by $0.14 per share.

7. Which of the following statements is correct in relation to a stock investment?
I. The capital gains yield can be positive, negative, or zero.
II. The dividend yield can be positive, negative, or zero.
III. The total return can be positive, negative, or zero.
IV. Neither the dividend yield nor the total return can be negative.
A. I only
B. I and II only
C. I and III only
D. I and IV only
E. IV only

8. As long as the inflation rate is positive, the real rate of return on a security will be ____ the nominal rate of return.
A. greater than
B. equal to
C. less than
D. greater than or equal to
E. unrelated to

9. The excess return is computed as the:
A. return on a security minus the inflation rate.
B. return on a risky security minus the risk-free rate.
C. risk premium on a risky security minus the risk-free rate.
D. the risk-free rate plus the inflation rate.
E. risk-free rate minus the inflation rate.

10. Which one of the following statements is correct?
A. The greater the volatility of returns, the greater the risk premium.
B. The lower the volatility of returns, the greater the risk premium.
C. The lower the average return, the greater the risk premium.
D. The risk premium is unrelated to the average rate of return.
E. The risk premium is not affected by the volatility of returns.

11. To convince investors to accept greater volatility, you must:
A. decrease the risk premium.
B. increase the risk premium.
C. decrease the real return.
D. decrease the risk-free rate.
E. increase the risk-free rate.

12. Estimates of the rate of return on a security based on a historical arithmetic average will probably tend to _____ the expected return for the long-term while estimates using the historical geometric average will probably tend to _____ the expected return for the short-term.
A. overestimate; overestimate
B. overestimate; underestimate
C. underestimate; overestimate
D. underestimate; underestimate
E. accurately; accurately

13. Which two of the following are the most likely reasons why a stock price might not react at all on the day that new information related to the stock issuer is released?
I. insiders knew the information prior to the announcement
II. investors need time to digest the information prior to reacting
III. the information has no bearing on the value of the firm
IV. the information was anticipated
A. I and II only
B. I and III only
C. II and III only
D. II and IV only
E. III and IV only

14. Which one of the following statements is correct concerning market efficiency?
A. Real asset markets are more efficient than financial markets.
B. If a market is efficient, arbitrage opportunities should be common.
C. In an efficient market, some market participants will have an advantage over others.
D. A firm will generally receive a fair price when it issues new shares of stock.
E. New information will gradually be reflected in a stock's price to avoid any sudden change in the price of the stock.

15. Inside information has the least value when financial markets are:
A. weak form efficient.
B. semiweak form efficient.

C. semistrong form efficient.
D. strong form efficient.
E. inefficient.

16. The U.S. Securities and Exchange Commission periodically charges individuals with insider trading and claims those individuals have made unfair profits. Given this, you would be most apt to argue that the markets are less than _____ form efficient.
A. weak
B. semiweak
C. semistrong
D. strong
E. perfect

17. One year ago, you purchased a stock at a price of $32.16. The stock pays quarterly dividends of $0.20 per share. Today, the stock is selling for $28.20 per share. What is your capital gain on this investment?
A. -$4.16
B. -$3.96
C. -$3.76
D. -$3.16
E. -$2.96

Capital gain = $28.20 - $32.16 = -$3.96

18. Six months ago, you purchased 100 shares of stock in Global Trading at a price of $38.70 a share. The stock pays a quarterly dividend of $0.15 a share. Today, you sold all of your shares for $40.10 per share. What is the total amount of your dividend income on this investment?
A. $15
B. $30
C. $45
D. $50
E. $60

Dividend income = ($0.15 × 2) × 100 = $30

19. A year ago, you purchased 400 shares of Stellar Wood Products, Inc. stock at a price of $8.62 per share. The stock pays an annual dividend of $0.10 per share. Today, you sold all of your shares for $4.80 per share. What is your total dollar return on this investment?
A. -$382
B. -$372
C. -$1,528
D. -$1,488
E. -$1,360

Total dollar return = ($4.80 - $8.62 + $0.10) × 400 = -$1,488

20. Today, you sold 200 shares of Indian River Produce stock. Your total return on these shares is 5.65 percent. You purchased the shares one year ago at a price of $31.10 a share. You have received a total of $100 in dividends over the course of the year. What is your capital gains yield on this investment?
A. 3.68 percent
B. 4.04 percent
C. 5.67 percent
D. 7.26 percent
E. 7.41 percent

Capital gains yield = .0565 - [($100/$200)/$31.10] = 4.04 percent

21. Four months ago, you purchased 1,500 shares of Lakeside Bank stock for $11.20 a share. You have received dividend payments equal to $0.25 a share. Today, you sold all of your shares for $8.60 a share. What is your total dollar return on this investment?
A. -$3,900
B. -$3,525
C. -$3,150
D. -$2,950
E. -$2,875

Total dollar return = ($8.60 - $11.20 + $0.25) × 1,500 = -$3,525

22. One year ago, you purchased 200 shares of a stock at a price of $54.18 a share. Today, you sold those shares for $40.25 a share. During the past year, you received total dividends of $164 while inflation averaged 4.2 percent. What is your approximate real rate of return on this investment?
A. -24.20 percent
B. -28.40 percent
C. -20.00 percent
D. 20.00 percent
E. 24.20 percent

Nominal return = [$40.25 - $54.18 + ($164/200)]/$54.18 = -0.2420
Approximate real return = -0.2420 - 0.042 = -28.40 percent

23. A stock had returns of 11 percent, -18 percent, -21 percent, 5 percent, and 34 percent over the past five years. What is the standard deviation of these returns?
A. 18.74 percent
B. 20.21 percent
C. 20.68 percent
D. 22.60 percent
E. 23.49 percent

Average return = (0.11 - 0.18 - 0.21 + 0.05 + 0.34)/5 = .022;
$\sigma = \sqrt{[1/(5 - 1)]\ [(0.11 - 0.022)^2 + (-0.18 - 0.022)^2 + (-0.21 - 0.022)^2 + (0.05 - 0.022)^2 + (0.34 - 0.022)^2]}$ = 22.60 percent

24. A stock has an expected rate of return of 13 percent and a standard deviation of 21 percent. Which one of the following best describes the probability that this stock will lose at least half of its value in any one given year?
A. 0.1 percent
B. 0.5 percent
C. 1.0 percent
D. 2.5 percent
E. 5.0 percent

Lower bound of 99 percent range = 0.13 - (3 × 0.21) = -50 percent
Probability of losing 50 percent or more in any one year is 0.5 percent.

25. A stock had returns of 15 percent, 8 percent, 12 percent, -21 percent, and -4 percent for the past five years. Based on these returns, what is the approximate probability that this stock will return at least 15 percent in any one given year?

A. less than 0.5 percent
B. greater than 0.5 percent but less than 1.0 percent
C. greater than 1.0 percent but less than 2.5 percent
D. greater than 2.5 percent but less than 16 percent
E. greater than 16.0 percent

Average return = (0.15 + 0.08 + 0.12 - 0.21 - 0.04)/5 = 0.02
$\sigma = \sqrt{[1/(5 - 1)]\ [(0.15 - 0.02)^2 + (0.08 - 0.02)^2 + (0.12 - 0.02)^2 + (-0.21 - 0.02)^2 + (-0.04 - 0.02)^2]} = 0.1475$
Upper end of 68 percent range = 0.02 + 0.1475 = 16.75 percent
Probability of earning at least 15 percent in any one year is greater than 16 percent.

26. A stock has annual returns of 6 percent, 14 percent, -3 percent, and 2 percent for the past four years. The arithmetic average of these returns is _____ percent while the geometric average return for the period is _____ percent.

A. 4.57; 4.75
B. 4.75; 4.57
C. 6.33; 6.19
D. 6.19; 6.33
E. 6.33; 6.33

Arithmetic average = (0.06 + 0.14 - 0.03 + 0.02)/4 = 4.75 percent
Geometric return = $(1.06 \times 1.14 \times 0.97 \times 1.02)^{.25} - 1 = 4.57$ percent

27. A stock had the following prices and dividends. What is the geometric average return on this stock?

Year	Price	Dividend
1	$16.40	–
2	$16.62	$0.50
3	$15.48	$0.50
4	$9.15	$0.25

A. -15.87 percent
B. -15.21 percent
C. -13.33 percent
D. -12.91 percent
E. -11.48 percent

Return for year 2 = ($16.62 - $16.40 + $0.50)/$16.40 = 4.3902 percent
Return for year 3 = ($15.48 - $16.62 + $0.50)/$16.62 = -3.8508 percent
Return for year 4 = ($9.15 - $15.48 + $0.25)/$15.48 = -39.2765 percent
Geometric return = $(1.043902 \times 0.961492 \times 0.607235)^{1/3} - 1 = -15.21$ percent

28. Over the past fifteen years, the common stock of The Flower Shoppe, Inc. has produced an arithmetic average return of 12.2 percent and a geometric average return of 11.5 percent. What is the projected return on this stock for the next five years according to Blume's formula?
A. 11.70 percent
B. 11.89 percent
C. 12.00 percent
D. 12.03 percent
E. 12.12 percent

$$R(5) = \frac{5-1}{15-1} \times 0.115 + \frac{15-5}{15-1} \times 0.122 = 12.00 \text{ percent}$$

29. You find a certain stock that had returns of 4 percent, -5 percent, -15 percent, and 16 percent for four of the last five years. The average return of the stock for the 5-year period was 13 percent. What is the standard deviation of the stock's returns for the five-year period?
A. 21.39 percent
B. 24.98 percent
C. 27.16 percent
D. 31.23 percent
E. 34.02 percent

Return for missing year: $0.04 - 0.05 - 0.15 + 0.16 + x = 0.13 \times 5$; $x = 65$ percent
Std dev = $\sqrt{}$ [1/(5 - 1)] [$(0.04 - 0.13)^2 + (-0.05 - 0.13)^2 + (-0.15 - 0.13)^2 + (0.16 - 0.13)^2 + (0.65 - 0.13)^2$ = 31.23 percent