

Investment Analysis (FIN 383)

Spring 2008

Homework 1

Instructions: please read carefully

- **You should show your work how to get the answer for each calculation question to get full credit.**
- **The due date is Thursday, Feb 14, 2008. Late homework will not be graded.**

Name(s):

Student ID

Chapter 1

1. There would be no _____ in an efficient stock market.
 - a. underpriced or overpriced stocks
 - b. returns higher than 100%
 - c. commission costs
 - d. taxes

1. a
2. A _____ represents an ownership share in a corporation.
 - a. bond
 - b. preferred stock
 - c. common stock
 - d. All of the above.

2. c
3. In securities markets, the risk-return trade-off implies that assets with higher risk will offer investors _____ expected returns.
 - a. higher
 - b. lower
 - c. the same
 - d. None of the above.

3. a
4. Allocation of the investment portfolio across broad asset classes refers to the _____.
 - a. security analysis
 - b. top-down portfolio construction
 - c. asset allocation
 - d. None of the above.

4. c
5. American Depositary Receipts are claims to _____.
 - a. foreign stocks
 - b. American stocks
 - c. North American stocks
 - d. European stocks

5. a
6. Firms that specialize in helping companies raise capital by selling securities are called _____.
 - a. industrial banks
 - b. commercial banks
 - c. investment banks
 - d. None of the above.

6. c

7. _____ are financial assets.

- a. Options
- b. Factories
- c. Commercial properties
- d. All of the above are financial assets.

7. a

8. Portfolio manager with a passive investment strategy will manage a portfolio by _____.

- a. holding a diversified portfolio
- b. selecting mispriced securities
- c. timing the performance of securities
- d. None of the above.

8. a

9. Corporate bonds are _____ securities.

- a. fixed-income
- b. money-market
- c. derivatives
- d. real

9. a

Chapter 2

10. Commercial papers are short-term debt issued by _____ companies

- a. large and well-known
- b. small and well-known
- c. financial
- d. commercial

10. a

11. Preferred stock dividends are _____.

- a. tax exempted
- b. cumulative
- c. non-cumulative
- d. risk free

11. b

12. The price which the owner of a put option will receive from selling the stock named in the option contract is called the _____.

- a. put price
- b. expiration price
- c. exercise price
- d. none of the above

12. c

13. In the event of the company's bankruptcy, _____.
- a. the firm's bondholders are personally liable for the firm's obligations
 - b. the most shareholders can lose is their original investment in the firm's stock plus any legal costs
 - c. bondholders have claim to what is left from the liquidation of the firm's assets after paying shareholders
 - d. common shareholders are the last in line to receive their claims on the firm's assets

13. d

14. Money Market securities are characterized by _____.
- a. long maturity and high liquidity
 - b. long maturity and low liquidity
 - c. short maturity and low liquidity
 - d. short maturity and high liquidity

14. d

15. Which bond has a lower after-tax yield to maturity to you who are in a 20% tax bracket: a municipal bond that was issued in your state with a yield of 6% and a similar corporate bond with a yield of 6%?
- a. Corporate bond
 - b. Municipal bond
 - c. They should have the same after-tax yield to you.
 - d. Cannot be determined.

15. a

16. Investors purchase Treasury bills at a _____ and will receive the _____ at maturity.
- a. discount; face value
 - b. premium; face value and interest
 - c. discount; face value and interest
 - d. premium; face value

16. a

17. The buyer of an orange juice futures contract has _____ to _____ a certain quantity of orange juice on the maturity date, at a specific price.
- a. an obligation, buy
 - b. an obligation, sell
 - c. the right, sell
 - d. the right, buy

17. a

18. The divisor of the Dow Jones Industry Average is updated when one of the companies _____.

- a. is replaced by another
- b. issues a stock split
- c. has negative earnings
- d. A and B above.

18. d

19. If a treasury note has a bid price of \$982.50, the quoted bid price in the Wall Street Journal would be _____.

- A) 98:08
- B) 98:25
- C) 98:50
- D) 98:40

19. a

$(98 + 08/32)\%$ of par (1000) = 982.50

20. Why do call options with exercise prices higher than the price of the underlying stock sell for positive prices?

There is always a chance that the market stock price will be higher than the exercise price. Investors will pay something for this chance of a positive payoff.

21. Explain the difference between a put option and a short position in a futures contract.

A put option conveys the *right* to sell the underlying asset at the exercise price. A short position in a futures contract carries an *obligation* to sell the underlying asset at the futures price.

22. Explain the difference between a call option and a long position in a future contract

A call option conveys the *right* to buy the underlying asset at the exercise price. A long position in a futures contract carries an *obligation* to buy the underlying asset at the futures price.

23. Look at the following information of IBM options (it is slide # 42 in the lecture note) and answer the following question

FIGURE 2.11

Stock options on IBM

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Prices at close January 04, 2007

IBM(IBM)		Underlying stock price: 98.31					
Expiration	Strike	Call			Put		
		Last	Volume	Open Interest	Last	Volume	Open Interest
Jan	90	8.60	305	39159	0.15	630	36837
Feb	90	9.10	22	167	0.30	47	914
Apr	90	10.60	49	6216	0.90	1314	8296
Jul	90	12.00	1	951	1.70	6	1074
Jan	95	4.30	6895	48822	0.63	1710	31335
Feb	95	4.90	4800	1579	1.10	723	6058
Apr	95	6.50	885	9230	1.90	1299	5367
Jul	95	8.10	44	1770	1641
Jan	100	1.26	3654	36888	2.70	3191	6420
Feb	100	1.90	1354	4339	3.07	4318	991
Apr	100	3.40	1569	10529	4.30	304	1139
Jul	100	5.30	41	5426	581
Jan	105	0.25	686	2406	6.60	174	151
Feb	105	0.55	860	1291	7.00	181	300
Apr	105	1.75	299	4532	7.60	2	519
Jul	105	3.10	197	1523	8.00	1	622

Suppose you buy an April expiration call option with exercise price \$95.

a. If the stock price in April is \$101, will you exercise your call? What are the profit and rate of return on your position?

a. Yes. As long as the stock price at expiration exceeds the exercise price, it makes sense to exercise the call.

$$\text{Gross profit is: } \$101 - \$95 = \$6$$

$$\text{Net profit} = \$6 - \$6.50 = \$0.50 \text{ loss}$$

$$\text{Rate of return} = -0.50 / 6.50 = -0.0769 \text{ or } 7.69\% \text{ loss}$$

b. What if you had bought the April call with exercise price 90? (If the stock price in April is \$101, will you exercise your call? What are the profit and rate of return on your position?)

b. Yes, exercise.

$$\text{Gross profit is: } \$101 - \$90 = \$11$$

$$\text{Net profit} = \$11 - \$6.50 = \$4.50 \text{ gain}$$

$$\text{Rate of return} = 4.50 / 6.50 = 0.6923 \text{ or } 69.23\% \text{ gain}$$

c. What if you had bought April put with exercise price 95? (If the stock price in April is \$101, will you exercise your call? What are the profit and rate of return on your position?)

c. A put with exercise price \$95 would expire worthless for any stock price equal to or greater than \$95. An investor in such a put would have a rate of return over the holding period of -100%.

24. Consider the three stocks in the following table, P_t represents the price at time t , Q_t represents shares outstanding at time t . Stock C splits 2-for-1 in the last period.

	P_0	Q_0	P_1	Q_1	P_2	Q_2
A	90	100	95	100	95	100
B	50	200	45	200	45	200
C	100	200	110	200	55	400

a. Calculate the rate of return on a price weighted index of the three stocks for the first period ($t=0$ to $t=1$)

At $t = 0$, the value of the index is: $(90 + 50 + 100)/3 = 80$

At $t = 1$, the value of the index is: $(95 + 45 + 110)/3 = 83.3333$

The rate of return is: $(83.3333/80) - 1 = 4.167\%$

b. What must happen to the divisor for the price weighted index in year 2 (when the stock C has the split 2-for-1)

In the absence of a split, stock C would sell for 110, and the value of the index would be: $(95 + 45 + 110)/3 = 83.3333$

After the split, stock C sells at 55. Therefore, we need to set the divisor (d) such that:

$$83.3333 = (95 + 45 + 55)/d$$

$$d = 2.340$$