FIN 432 – Investment Analysis and Management
Review Notes for Midterm Exam

Chapter 1
1.   Investment vs. investments
2.   Real assets vs. financial assets
3.   Investment process
      Investment policy, asset allocation, security selection and analysis, portfolio
      construction and analysis, and portfolio rebalance
4.   Players in investment markets
5.   Homework problems and examples discussed in class

Chapter 2
1.   Money markets: concepts and calculations
2.   Bond markets
3.   Equity markets
4.   Market indexes and averages: concepts and calculations
5.   Derivative markets: Concepts and calculations
6.   Homework problems and examples discussed in class

Sample Problems for Chapters 1&2

1.   Consider the following limit order book of a specialist. The last trade in the stock
      occurred at a price of $45.55.

Limit Buy Orders		Limit Sell Orders	
Price	Shares	Price	Shares
$45.50	500	$45.75	100
45.25	600	45.80	200
45.00	800	46.00	500

If a market order to buy 300 shares comes in, at what price(s) will the order be
filled?
Answer: first 100 shares at $45.75 and next 200 shares at $45.80

What will happen if a market order to sell 500 shares comes in?
Answer: it will be filled at $45.50

2.   Which of the following is not a money market security?   Answer: c

      a. U.S. Treasury bills
      b. Six month maturity certificates of deposit
      c. Common stocks
      d. Commercial papers

3.   Asset allocation refers to the _____   Answer: a

        a. Allocation of the investment portfolio across broad asset classes.
        b. Analysis of the value of securities.
        c. Choice of specific assets within each asset class.
        d. None of the answers above defines asset allocation.

4.   Security selection refers to the _____   Answer: c

        a. Allocation of the investment portfolio across broad asset classes.
        b. Analysis of the value of securities.
        c. Choice of specific securities within each asset class.
        d. Top down method of investing.

5.   Money market securities are characterized by _____   Answer: d
        I. Maturity less than one year.
        II. Safety of the principle investment.
        III. Low rates of return.

        a. I only
        b. I and II only
        c. I and III only
        d. I, II and III

6.   An investment advisor has recommended purchasing gold, stocks, and bonds
        in equal amounts. This recommendation reflects which part of the investment
        process?   Answer: a

        a. Asset allocation
        b. Investment analysis
        c. Portfolio analysis
        d. Security selection

7.   When computing the discount yield for a T-bill in a leap year you would use _____
        days in the year.   Answer: b

        a. 260
        b. 360
        c. 365
        d. 366

8.   An investor purchasing a T-bill earns interest (or a return) by   Answer: d

        a. Receiving interest payments every 90 days.
        b. Receiving dividend payments every 30 days.
        c. Converting the T-bill at maturity into a higher valued T-note.
        d. Buying the bill at a discount from the face value received at maturity.

9.	The bid price of a treasury bill is _____				Answer: b

a.	The price at which the dealer in treasury bills is willing to sell the bill.
b.	The price at which the dealer in treasury bills is willing to buy the bill.
c.	Greater than the ask price of the treasury bill expressed in dollar terms.
d.	The price at which the investor can buy the treasury bill.

10.	Which one of the following is a true statement regarding the Dow Jones Industrial Average?				Answer: b

a.	It is a value-weighted average of 30 large industrial stocks.
b.	It is a price-weighted average of 30 large industrial stocks.
c.	It is a price-weighted average of 100 large stocks traded on the New York Stock Exchange.
d.	It is a value-weighted average of all stocks traded on the New York Stock Exchange.

11.	A _____ gives its holder the right to sell an asset for a specified exercise price on or before a specified expiration date.				Answer: c

a.	Call option
b.	Futures contract
c.	Put option
d.	Interest rate swap

12.	A T-bill has 90 days to maturity and quotes with a 4.92 bid and a 4.86 ask. If the bill has a $10,000 face value an investor could buy this bill for	Answer: b

a.	$10,000.00.
b.	$9,878.50.
c.	$9,877.00.
d.	$9,880.16.

13.	An investor buys a 180-day T-bill at a discount quote of 5.25. The investor's actual annual rate of return on this investment is _____.				Answer: c

a.	5.25%
b.	5.39%
c.	5.47%
d.	5.52%

14. Currently the Dow Jones Industrial Average is computed by _____

    Answer: d

    a. Adding the prices of 30 large "blue-chip" stocks and dividing by 30.
    b. Calculating the total market value of the 30 firms in the index and dividing by 30.
    c. Measuring the current total market value of the 30 stocks in the index relative to the total value on the previous day.
    d. Adding the prices of 30 large "blue-chip" stocks and dividing by a divisor adjusted for stock splits and stock dividends.

15. If you thought prices of stock would be rising over the next few months you may wish to _____ on the stock. Answer: a

    a. Purchase a call option
    b. Purchase a put option
    c. Sell a futures contract
    d. Place a short sale order

16. The Hydro Index is a price weighted stock index based on the 5 largest boat manufacturers in the nation. The stock prices for the five stocks are $10, $20, $80, $50 and $40. The price of the last stock was just split 2 for 1 and the stock price was halved from $40 to $20. What is the new divisor for the price weighted index? Answer: c

    a. 5.00
    b. 4.85
    c. 4.50
    d. 4.75

17. A benchmark index has three stocks priced at $23, $43, and $56. The number of outstanding shares for each is 350,000 shares, 405,000 shares, and 553,000 shares, respectively. If the market value weighted index was closed at 970 yesterday and the prices changed to $23, $41, and $58 at the market close today, what is the new index value? Answer: c

    a. 960
    b. 970
    c. 975
    d. 985

18. Intermediate 2.12-2.14, 2.18, 2.18-2.19, and 2.22 (Check the answers posted on my website)

Chapter 3

1. New issues
2. Market structure
   Direct search, brokered, dealer, auction markets
3. Transactions: concepts and calculations
   Bid price, asked price, and bid-asked spread
   Types of orders: concepts and applications
   Types of transactions: long vs. short
4. Margin trading and short sales: concepts and calculations
   Margin requirements; Initial margin; Maintenance margin
   Margin call
   Up-tick, down-tick, and zero-tick
5. Homework problems and examples discussed in class

Chapter 4

1. Investment companies and mutual funds
2. Characteristics of investment companies: concepts and calculations
   NAV (net asset value)
   Open-end funds vs. closed-end funds
   Load funds vs. no-load funds
   Low-load funds
   Redemption fee (back-end load) and other fees
3. Types of mutual funds
4. Mutual fund performance: concepts and calculations
5. Investing in mutual funds
6. Homework problems and examples discussed in class

Sample Problems for Chapters 3&4

1. Underwriting is one of the services provided by ____.   Answer: b

   a. The SEC
   b. Investment bankers
   c. Publicly traded companies
   d. FDIC

2. Rank the following types of markets from least integrated and organized to most
   integrated and organized: Answer: d
   I. Brokered markets
   II. Continuous auction markets
   III. Dealer markets
   IV. Direct search markets

   a. IV, II, I, III
   b. I, III, IV, II
   c. II, III, IV, I
   d. IV, I, III, II

3.   An order to buy or sell a security at the current price is a _____. Answer: b

        a. Limit order
        b. Market order
        c. Stop loss order
        d. Stop buy order

4.   If an investor places a _____ order the stock will be sold if its price falls to the stipulated level. If an investor places a _____ order the stock will be bought if its price rises above the stipulated level.   Answer: c

        a. Stop-buy; stop-loss
        b. Market; limit
        c. Stop-loss; stop-buy
        d. Limit; market

5.   The difference between the price at which a dealer is willing to buy, and the price at which a dealer is willing to sell, is called the _____.   Answer: b

        a. Market spread
        b. Bid-ask spread
        c. Bid-ask gap
        d. Market variation

6.   Assume you purchased 500 shares of XYZ common stock on margin at $40 per share from your broker. If the initial margin is 60%, the amount you borrowed from the broker is _____.   Answer: c

        a. $20,000
        b. $12,000
        c. $ 8,000
        d. $15,000

7.   You sold short 300 shares of common stock at $30 per share. The initial margin is 60%. You must put up _____.   Answer: a

        a. $5,400
        b. $6,000
        c. $9,000
        d. $10,000

8.   You short-sell 200 shares of Rock Creek Fly Fishing Co., now selling for $50 per share. If you wish to limit your loss to $2,500, you should place a stop-buy order at _____.   Answer: b

a. $37.50
b. $62.50
c. $56.25
d. $59.75

9.   You purchased 100 shares of ABC common stock on margin at $40 per share. Assume the initial margin is 50% and the maintenance margin is 35%. You will get a margin call if the stock drops below _____. (Assume the stock pays no dividends and ignore interest on the margin loan.)   Answer: d

a. $26.55
b. $34.43
c. $28.95
d. $30.77

10.   Assume that you bought 100 shares of stock X at $50 per share in your margin account that has an initial margin of 60%. What would be the debt balance? How much equity capital should you provide? What would be the actual margin if the price rises to $70? If the maintenance margin is 30%, how low the price could drop before you receive a margin call?

Answer:
Total cost = $5,000
Loan = $2,000 (debt balance)
Equity = $3,000 (equity capital)

$$\text{Actual margin} = \frac{100 \times 70 - 2,000}{100 \times 70} = 71.43\% \text{ if the price rises to \$70}$$

Let P be the critical price such that the maintenance margin drops to 30%

$$\frac{100 \times P - 2,000}{100 \times P} = 30\%, \text{ solve for P}$$

Critical price = $28.57; if the price drops below $28.57, you will receive a margin call

11. You are bearish on stock ABC and decide to sell short 100 shares at the price of $50. If the initial margin is 50%, how much cash should you provide? How high can the price of the stock go before you receive a margin call if the maintenance margin is 30%?

Answer:
Short sale proceeds = $5,000
Initial margin = $2,500
Total assets = $7,500

Let P be the critical price such that the maintenance margin drops to 30%

$$\text{Margin} = \frac{7{,}500 - 100P}{100P} = 0.30, \text{ solve for } P = \$57.69$$

Critical price = $57.69; if the price rises above $57.69, you will receive a margin call

12. Rank the following fund category from most risky to least risky   Answer: d
I. Equity growth fund
II. Balanced fund
III. Equity income fund
IV. Money market fund

a. IV, I, III, II
b. III, II, IV, I
c. I, II, III, IV
d. I, III, II, IV

13. Assume that you have just purchased some shares in an investment company reporting $500 million in assets, $20 million in liabilities, and 40 million shares outstanding. What is the Net Asset Value (NAV) of these shares?   Answer: a

a. $12.00
b. $12.50
c. $15.45
d. $11.50

14.	Consider a no-load mutual fund with $200 million in assets and 10 million shares at the start of the year, and $250 million in assets and 11 million shares at the end of the year. During the year investors have received income distributions of $2 per share, and capital gains distributions of $0.25 per share. Assuming that the fund carries no debt, and that the total expense ratio of 1% is changed at year end (i.e., 1% is deducted from NAV_1) , what is the rate of return on the fund?

Answer: c

	a.	36.25%
	b.	24.85%
	c.	23.75%
	d.	There is not sufficient information to answer this question

15.	Intermediate 3.14-3.15, and CFA3.1-CFA3.3 from the book

16.	Intermediate 4.11-4.14 and 4.21 from the book

Chapter 5
1.	Risk and return: concepts and calculations
2.	Risk premium: concepts and calculations
3.	Mean and standard deviation: concepts and calculations
4.	Inflation and real return
5.	Asset allocation: concepts and calculations
6.	Homework problems and examples discussed in class

Chapters 6&7
1.	Portfolio construction with two risky assets: concepts and calculations
2.	Diversification
	Why portfolios can reduce total risk
3.	Modern portfolio theory: concepts and applications
	With n risky assets (no risk-free asset)
	Efficient portfolios
	Efficient frontier and MVP
	Indifference curves
	Choosing the optimal portfolio
	If a risk-free asset exists and borrowing and lending are allowed
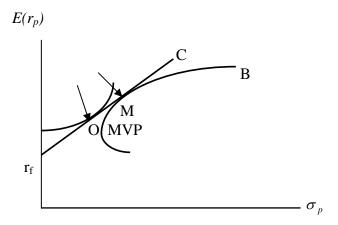	Efficient portfolios
	Efficient frontier and MVP
	Indifference curves
	Choosing the optimal portfolio
4.	Beta coefficient: concepts and calculations
5.	CAPM: concepts and calculations
6.	Capital market line and security market line
7.	Single index model: concepts and calculations
8.	APT model: concepts
9.	Multi-factor models: concepts

10. Identify all the important points/lines/curses in the following diagram

$E(r_p)$

11. Homework problems and examples discussed in class

Chapter 8
1. EMH: three forms, concepts, and implications
2. Evidence of market efficiency: concepts and implications
3. Evidence of market anomalies: concepts and implications
4. The role of portfolio manager in efficient market
5. Interpretation of EMH
6. Homework problems and examples discussed in class

Sample Problems for Chapters 5-8

1. The complete portfolio refers to the investment in _____.   Answer: c

   a. the risk-free asset
   b. the risky portfolio
   c. the risk-free asset and the risky portfolio combined
   d. the risky portfolio and the index

2. The market risk premium is defined as _____.   Answer: a

   a. the difference between the return on an index fund and the return on T-bills
   b. the difference between the return on a small-firm mutual fund and the return on the Standard and Poor's 500 index
   c. the difference between the return on the risky asset with the lowest returns and the return on T-bills
   d. the difference between the return on the highest return asset and the lowest return asset

3. The reward/variability ratio is given by _____. Answer: a

    a. the slope of the capital allocation line
    b. the second derivative of the capital allocation line
    c. the point at which the second derivative of the investor's indifference curve reaches zero
    d. portfolio excess return

4. Consider the following two investment alternatives. First, a risky portfolio that pays 15% rate of return with a probability of 60% or 5% with a probability of 40%. Second, a treasury bill that pays 4%. The expected risk premium on the risky investment is _____. Answer: b

    a. 5%
    b. 7%
    c. 9%
    d. 10%

5. You invest $10,000 in a complete portfolio. The complete portfolio is composed of a risky asset with an expected rate of return of 15% and a standard deviation of 21% and a treasury bill with a rate of return of 5%. How much money should be invested in the risky asset to form a portfolio with an expected return of 11%?
    Answer: a
    a. $6,000
    b. $4,000
    c. $7,000
    d. $3,000

6. You have $200,000 available to invest. The risk-free rate as well as your borrowing rate is 6%. The return on the risky portfolio is 12%. If you wish to earn a 15% return, you should _____. Answer: d

    a. invest $120,000 in the risky asset and $80,000 in the risk-free asset
    b. invest $150,000 in the risky asset and $50,000 in the risk-free asset
    c. invest $250,000 in the risky assets by borrowing $50,000
    d. invest $300,000 in the risky asset by borrowing $100,000

7. Diversification is most effective when security returns are _____.
    Answer: b
    a. High
    b. Negatively correlated
    c. Positively correlated
    d. Uncorrelated

8.   Beta is a measure of _____.   Answer: c

        a. Firm specific risk
        b. Diversifiable risk
        c. Market risk
        d. Unique risk

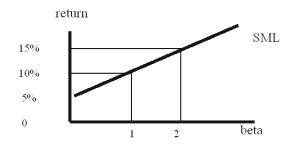9.   The risk that can be diversified away is _____.   Answer: b

        a. Beta
        b. Firm specific risk
        c. Market risk
        d. Systematic risk

10.   Consider the CAPM. The risk-free rate is 4% and the expected return on the
        market is 12%. What is the expected return on a stock with a beta of 1.5?
                                                                   Answer: d
        a. 4%
        b. 12%
        c. 15%
        d. 16%

11.   Security X has an expected rate of return of 13% and a beta of 1.15. The risk-free
        rate is 5% and the market expected rate of return is 15%. According to the capital
        asset pricing model, security X is _____.   Answer: b

        a. Fairly priced
        b. Overpriced
        c. Underpriced
        d. None of the above

        Use the following diagram to answer the next four questions:

12. What is the expected return on the market? Answer: c

   a. 0%
   b. 5%
   c. 10%
   d. 15%

13. What is the beta for a portfolio with an expected return of 12.5%? Answer: c

   a. 0
   b. 1
   c. 1.5
   d. 2

14. What is the expected risk premium for a portfolio with a beta of 0.5?
   Answer: a
   a. 2.5%
   b. 5.0%
   c. 7.5%
   d. 10%

15. What is the alpha (excess return) of a portfolio with a beta of 2 and actual return of 16%? Answer: a

   a. 1%
   b. 3%
   c. 5%
   d. -1%

16. Choose the portfolio from the following set that is not on the efficient frontier.
   Answer: a
   a. Portfolio A: expected return of 12% and standard deviation of 13%
   b. Portfolio B: expected return of 18% and standard deviation of 15%
   c. Portfolio C: expected return of 38% and standard deviation of 28%
   d. Portfolio D: expected return of 15% and standard deviation of 12%

   By comparing Portfolios A and D, we find that D provides a higher return and a lower risk. Therefore, if D is available we will never choose A

17. Given the utility function: $U = E(r) - 0.5A\sigma^2$, where $A = 4$ and four investments, choose the one that maximizes your utility.

Investments	Expected return	Standard deviation
1	.12	.30
2	.15	.50
3	.21	.16
4	.24	.21

Answer: Investment 3. For each portfolio: Utility = $E(r) - (0.5 \times 4 \times \sigma^2)$

Investment	E(r)	σ	U
1	0.12	0.30	-0.0600
2	0.15	0.50	-0.3500
3	0.21	0.16	0.1588
4	0.24	0.21	0.1518

You should choose the portfolio with the highest utility value.

If you are risk neutral, what investment should you choose?
Answer: Investment 4. When an investor is risk neutral, A = 0 so that the portfolio with the highest utility is the portfolio with the highest expected return.

18. The weak form of the EMH states that _____ must be reflected in the current stock price. Answer: a

   a. All past security price and volume data
   b. All past publicly available information
   c. All past information including inside information
   d. All costless information

19. The semi-strong form of the EMH states that _____ must be reflected in the current stock price. Answer: b

   a. All past security price and volume data
   b. All past publicly available information
   c. All past information including inside information
   d. All costless information

20. The strong form of the EMH states that _____ must be reflected in the current stock price. Answer: c

   a. All past security price and volume data
   b. All past publicly available information
   c. All past information including inside information
   d. All costless information

21. The term random walk is used in investments to refer to _____. Answer: c

   a. Stock price changes that are random but predictable
   b. Stock prices that respond slowly to both old and new information
   c. Stock price changes that are random and unpredictable
   d. Stock prices changes that follow the pattern of past price changes

22. Which of the following contradicts the proposition that the stock market is semi-strong efficient. Answer: c

   a. Over 25% of mutual funds outperform the market on average
   b. Insiders earn abnormal trading profits
   c. Every January, the stock market, especially for small firms, earns above normal returns
   d. Applications of technical trading rules fail to earn abnormal returns

23. Which of the following stock price observations would appear to contradict the weak form of the efficient market hypothesis? Answer: c

   a. The average rate of return is significantly greater than zero
   b. The correlation between the market return one week and the return the following week is zero
   c. You could have consistently made superior returns by buying stock after a 10% rise in price and selling after a 10% fall
   d. You could have consistently made superior returns by forecasting future earnings performance with your new Crystal Ball forecast methodology

24. Which of the following statements is/are correct? Answer: d

   a. If a market is weak form efficient it is also semi- and strong-form efficient
   b. If a market is semi-strong efficient it is also strong-form efficient
   c. If a market is strong form efficient it is also semi-strong but not weak-form efficient
   d. If a market is strong form efficient it is also semi- and weak-form efficient

25. In a CAPM equilibrium, the risk-free rate is 4% and the expected rate of return on the market is 12% with a standard deviation of 20% ($\sigma_m = 20\%$). Stock X has a beta of 1.5, an expected return of 16%, and a standard deviation of 35% ($\sigma_X = 35\%$). What percentage of the total risk for stock X is the firm's specific risk? Answer: c

   a. 35%
   b. 29.85%
   c. 26.53%
   d. 20.25%

26. Intermediate 5.12-5.16 from the textbook and assigned CFA questions

27. Intermediate 6.8-6.12 from the textbook and assigned CFA questions

28. Intermediate 7.17-7.19 from the textbook and assigned CFA questions

29. Intermediate 8.10- 8.17 from the textbook and assigned CFA questions