# Finance 34600 - Investment Theory

## Outline for Lecture 1
## Securities Markets and Trading

Lecture 1 provides an overview of the investment process, including a review of basic return calculations. The lecture includes a discussion of index returns and of various types of investment companies. It also describes the markets in which equity securities are issued and traded. We begin with a discussion of the primary market, with particular attention on the market for initial public offerings of equity. We then turn our attention to the secondary markets, emphasizing the similarities and differences between alternative market structures such as the NYSE and Nasdaq.

After covering this material, you should be familiar with the institutional features of both the primary and secondary markets, including the underwriting process, exchange listing, and various trading systems. You should also be able to describe the process by which firms issue securities in the primary market as well as the process by which trading takes place on the NYSE and Nasdaq. Finally, we will discuss several important developments in the securities markets including SEC rule changes, SEC investigations of various market participants, and mergers and acquisitions among the major players in these markets.

**Suggested Problems from Bodie, Kane, and Marcus (7th Ed.):**

Ch. 2: Online quiz and end-of-chapter problems 8, 9, 10, 12

Ch. 3: Online quiz and end-of-chapter problems 1, 7, 8, 18, 19

Ch. 4: Online quiz and end-of-chapter problems 13, 19, 20

**Chapter 2:**

8. Consider the three stocks in the following table. Stock C splits two-for-one in the last period.

| Stock | $Price_0$ | $Shares_0$ | $Price_1$ | $Shares_1$ | $Price_2$ | $Shares_2$ |
|---|---|---|---|---|---|---|
| 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).

(b) Calculate the new divisor that must be used in order to account for the stock split in the second period ($t$=1 to $t$=2).

(c) Calculate the rate of return on the price-weighted index for the second period ($t$=1 to $t$=2).

9. Using the data in Problem 8, calculate the return in the first period ($t$=0 to $t$=1) on the following indexes of the three stocks:

(a) a value-weighted index
(b) an equally-weighted index

10. An investor pays federal and state taxes at a combined rate of 30%. If corporate bonds offer a yield of 9%, what yield must municipal bonds offer for the investor to prefer them to corporate bonds?

12. Given an investor in a particular tax bracket and a non-taxable bond with a particular yield, the equivalent taxable yield is defined as the yield that a taxable bond must offer in order for the investor to be indifferent between the taxable bond and the non-taxable bond. Suppose a municipal bond offers a (non-taxable) yield of 4%. Calculate the equivalent taxable yield for an investor in each of the following tax brackets: 0%, 10%, 20%, 30%.

**Chapter 3:**

1. FBN, Inc. has just sold 1,000,000 shares in an initial public offering. The underwriter's spread was 7%. The offering price of the shares was $50, but the shares immediately jumped to $53 at the start of secondary market trading and closed at this price on the first day.

   (a) How much did the underwriter earn in fees on this issue?
   (b) How much money did the firm raise from this issue after fees?
   (c) What was the percentage underpricing on this issue?
   (d) What is your best estimate of the total direct and indirect costs to FBN from this issue?

7. You are bullish on Telecom stock. The current market price is $50 per share and you have $5,000 of your own to invest. You borrow an additional $5,000 from your broker at an annual interest rate of 8% and invest $10,000 in the stock.

   (a) What will be the return on your margin position if the price of Telecom increases to $55 during the next year?

   (b) Suppose the price drops immediately after you take this position. At what price would you receive a margin call from your broker?

   (c) Suppose instead that the large price drop occurs one year after you take the position. At what price would you receive a margin call from your broker?

8. You are bearish on ABC Financial and decide to sell short 500 shares at the current market price of $60.

   (a) How much in cash and securities must you place in your margin account if the broker's initial margin requirement is 50%?

   (b) How high can the price go before your get a margin call from your broker?

18. On January 1, you sold short 100 shares of Zenith stock at $14 per share. On March 1, a dividend of $2 per share was paid. On April 1, you covered the short sale by buying the stock at a price of $9 per share. You paid $0.50 per share in commissions for each transaction. What is the value of your account on April 1$^{st}$?

19. If you pace a stop-loss order to sell 100 shares of stock at $55 when the current market price is $62, how much will you receive for each share if the price drops to $50?

**Chapter 4:**

13. Consider a mutual fund with $200 million in assets at the start of the year and with 10 million shares outstanding. The fund invests in a portfolio of stocks that provides dividend income at the end of the year of $2 million (which is distributed to investors). The stocks included in the fund's portfolio increase in price by 8%, but no securities are sold and there are no capital gains distributions. The fund charges 12b-1 fees of 1% per year which are deducted from portfolio assets at year-end. What is the net asset value at the start and end of the year? What is the rate of return for an investor in the fund?

19. You are considering an investment in a mutual fund with a 4% front-end load and operating expenses of 0.5% per year. You can invest instead in a bank CD paying 6% interest.

    (a) If you plan to invest for two years, what annual rate of return must the fund portfolio earn for you to be better off in the fund than in the CD? (Assume annual compounding of returns.)

    (b) How does your answer change if you plan to invest for six years? Why does your answer change?

    (c) Now suppose that instead of a front-end load, the fund assesses annual 12b-1 fees of 0.75%. What annual rate of return must the fund portfolio earn for you to be better off in the fund than in the CD? Does your answer in this case depend on your time horizon?

20. The turnover ratio for a portfolio is defined as the proportion of the portfolio that is replaced each year (one security sold and another purchased in its place). Suppose that every time a fund manager trades stock, transaction costs such as commissions and bid-ask spreads amount to 0.4% of the value of the trade. If the portfolio turnover rate is 50%, by how much is the total return of the portfolio reduced by trading costs?