FIRST CLASS ASSIGNMENT (FOLLOWED BY ENTIRE COURSE SYLLABUS & PROBLEMS)

For the first class, please carefully read William W. Bratton, Corporate Finance pp. 1-6 and 38-42 (SIXTH ed. 2008) {OR pp. 1-6, 42-46 (SEVENTH ED. 2012)} {OR pp. 1-6, 27-29 (EIGHTH ED. 2016)}. If you wish to read ahead, please consult the syllabus below.

CORPORATE FINANCE REVISED SYLLABUS & REVISED PROBLEMS

[AFTER THE SYLLABUS BELOW IS THE SET OF PROBLEMS FOR THE ENTIRE COURSE.]

NO PRE-REQUISITE.


To provide an idea of the course, on my library course reserve are one or two copies of both the Bratton and the Klein & Coffee books. Skimming the Klein & Coffee assigned reading would give a quick overview.

The course will have only one examination at the end of the semester. The final examination will be completely closed book and roughly two hours long. The examination will consist of problems and essay questions.
IN GRADING, I RESERVE THE RIGHT TO GIVE A BONUS FOR CLASS PARTICIPATION. OTHERWISE, YOUR GRADE IS BASED ON THE FINAL EXAMINATION. I SHALL NOT ANSWER QUESTIONS ABOUT THE EXAM, EXCEPTION IN CLASS.

For an ESSENTIAL initial overview, you should skim as soon as possible all the pages of K & C assigned below.

The learning outcomes of the course should include the following:

1. ability to converse intelligently with clients and potential clients about finance; just as the ability to speak Spanish is useful to attorneys with Spanish-speaking clients, the ability to speak the language of finance is useful to attorneys with business clients.
2. ability to invest optimally, including investing in the stock market.
3. ability to calculate the amount to which an initial deposit will grow at compound interest.
4. ability to capitalize a future earnings stream.
5. ability to discount one or more future payments to present value.
6. when discounting or capitalizing, ability to adjust for the risk of future returns.
7. ability to value an enterprise or security, including discounting both future returns and costs.
8. understanding “variance” and “standard deviation.”
9. understanding portfolio theory.
10. understanding the capital asset pricing model (covered if time permits).
11. understanding the “efficient” market theory and the arguments for and against its validity.
12. understanding practical applications of discounting to present value and portfolio theory.
13. understanding how to apply financial theory to decide the proper dollar amount for settling a lawsuit.
[MATERIAL BELOW COVERED ONLY IF TIME PERMITS]
14. understanding capital budgeting.
15. understanding dividends and their relation to capital budgeting and the Modigliani/Miller dividend timing irrelevance theory.
16. understanding the relationship of repurchase of shares to dividends, firm value, and the Modigliani/Miller dividend timing irrelevance theory.
I.Goals of the Course

I. Valuation of a Going Concern
A. Introduction. pp. 1-6 {1-6 (end of carryover §)} {1-6}; K & C pp. 321-22
B. Elements of Valuation.
   1. Discounting Future Returns to Present Value (p.v.)
      a. Introductory hypothetical. pp. 38-39 {42-43} {25-28 (to end
         carryover §)}
      b. Valuation of a firm with perpetual fixed future earnings.
      c. Valuation of a firm with a finite set of future earnings.
         (1) compound interest. pp. 41-42 {44-46 (“Future Amounts . . .
            “”)} {28-30}
         (2) discounting a single future payment to present value. pp. 39-
            40 {43-44} {30-33}; K & C pp. 322-24
         (3) discounting to present value a series of future payments. pp.
            324-25 (to bottom of page 325)
            i. unequal
            ii. equal
         328-30
      e. Inverse relationship between interest rate and present value
      f. Definition of "yield." K & C pp. 245-46
      g. Taking tax into consideration. K & C p. 341
   2. Uncertain returns--earnings estimates, probability distributions, and
   3. The Factor of Risk
      a. What is risk? K & C pp. 243-45
      c. Dispersion. p. 70 (¶1) {74} (¶ 1) {70-72}
      d. Adjusting discount or capitalization rate upwards. Re-read K &
         C p. 248; read K & C pp. 341-43
      e. Certainty equivalent.
      f. Which method is better? Adjusting rate or certainty-equivalent?
      g. Historic rates of return on various types of securities. pp. 70-71
         {74-75} {last ¶ -74 (to “D”)}
h. Rudiments of the Balance Sheet
   (1) assets
   (2) liabilities
   (3) net worth
   (4) book value


j. Which is a better predictor of future dividends: recent or present accounting earnings, OR recent or present dividends?

k. P/E Ratios as a Tool to Value Stock. Read David. R. Baker, Can P/E ratios be an investor’s divining rod?, sfgate (available online); optional: Justin Lahart, Taking Stock Market at Face Value” wsj.com (available online)


m. Portfolio theory. pp. 84 (starting with “C”) {87-95} {74-80}
   (not as difficult as first seems; graphs of common sense).

   Optional: Jonnelle Mart, Why the Math of Correlation Matters” wsj.com (available online)

o. Mixing risky and risk-free assets. pp. 94-95 {107-08} {80-82}

p. Mixing risky assets and borrowing/lending. pp. 96-98 {108-11} {82-86 (1st ¶)}. PLEASE STUDY GRAPHS CAREFULLY.

Risk” & “The Capital Asset Pricing Model”; please carefully study graph; pp. 99-105 {112-17} (to “d”) {{93-95 (thru 1st full ¶)) (please study graph at p. 101 {113} carefully {{8th ed. holders, look at older ed. on reserve or wait for slide}}; please read equations at pp. 103-04 {115-16} {{94}} seven times; NOT RESPONSIBLE FOR DERIVING TWO BASIC CAPM EQUATIONS). Optional: Burton Malkiel, supra, 1st two chapters of Part III of any ed.; Karen Damato & Robert McGough, New Gauge Measures Risk Involved with Mutual Funds wsj.com (available online)

(1) market model
(2) capital asset pricing model
(3) difference between two.

r. Other assumptions of CAPM.
t. Arbitrage pricing theory (attempt to measure relationship of stock price to several relevant factors). pp. 119-20 {138-40} {{older editions on reserve or wait for slides}}
u. Summary of risk


5. Some tips about investing. All optional: Jonathan Clements, Balancing Act: Trying to Make Money Whether the Market Goes
Up or Down wsj.com (available online); Andrea Coombes, Financial Literacy 101 wsj.com (list of books) (available online); 2011 letter – Berkshire Hathaway pdf (Warren Buffett), at 17-19 (“Basic Choices for Investors . . . .) (available online); Anna Prior, A Portfolio As Simple as One, Two, Three wsj.com (available online); my articles on 401(k) and on Roth conversion (sent by email or posted on nyu.home)

6. Mini-Summary
7. Practical Applications of Discounting to Present Value. Re-read carefully one p., "Avon article.” Read pp. 136-41 {156-60} {{176-81}}. Optional: Vipal Monga, Why the Pension Gap Is Soaring wsj.com (available online)

8. Practical Applications of Portfolio Theory

[MATERIAL BELOW COVERED ONLY IF TIME PERMITS]

II. Capital Budgeting.
   A. Two Approaches. pp. 45-47 {49-51} {{39-42}}, 215-16 {265-66}

III. Dividends and Retained Earnings.
   A. Dividends and Dividend Policy. pp. 620-21 {774-75} {{901-02}}
      3. The Conventional view. pp. 625-29 {778-83} {{904-07}}; K & C pp. 386 (sections 1 and 2)
In all the problems, to the extent possible, if you use equations, formulas, etc., please explain verbally how you arrived at the answer.

1. Assume the risk-free interest rate is 5%. What is the capitalized value of a firm that will earn exactly $30 a year forever?

2. To what amount will $100 grow after 34 years at a compound interest rate of 8%? Please give the figure first and then use one of the tables in the casebook to calculate the answer.

3. What is the value today, i.e., the present value, of $105 to be paid one year from now? What assumption are you making? Please use equations to explain how you arrived at the answer.

4. Please calculate the present value of $100 to be paid 23 years from now. Assume an interest rate of 12%. Please give the figure first and then use one of the tables in the casebook.
5. Assume an interest rate of 5%. What would be the present value of the following package of 4 payments: $100 at the end of year 1, $200 at the end of year 2, $150 at the end of year 3, plus $100 at the end of year 4? Please give the figures first and then use one of the tables in the casebook.

6. Assume the Powerball Lottery Prize offers a choice:

(a) $50 million paid at the end of each year for 30 years, or
(b) a $930 million lump-sum payment.

Ignoring all taxes, which choice is better.

Assume an interest rate of 3%.

Please set up a series of quotients that determines the value of the 30 year alternative. You may use ellipses (“ . . . .”) between the first and last quotient. Please use one of the tables to calculate the value of the series of quotients.

7. Please calculate the present value of a 9-year 5% bond that pays interest annually and $1,000 at maturity. Assume that the prevailing interest rate is 8%.

8. Explain why the interest rate and present value vary inversely with each other.

9. Assume the going interest rate is 10%. For an individual in the 50% income tax bracket, please calculate the present value of a taxable $10,000 a year forever. Please calculate the present value of a single payment of a taxable $10,000 received ten years from now.

10. What is the "expected value" of a gambling game with the following outcomes and associated probabilities?

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td>.1</td>
</tr>
<tr>
<td>50</td>
<td>.3</td>
</tr>
<tr>
<td>10</td>
<td>.3</td>
</tr>
<tr>
<td>0</td>
<td>.2</td>
</tr>
<tr>
<td>(30)</td>
<td>.1</td>
</tr>
</tbody>
</table>

["(30)" means a loss of 30.]

11. Suppose I offer to play the following game ONLY ONCE. I shall flip a coin. If the coin comes up heads, you win $1,000. If the coin comes up tails, you pay me $900. How many of you would be willing to play? What is the expected value to you of this game? If this game has a positive expected value, why won't you play?
12. Suppose I offer to play the following game **ONLY ONCE**. I shall flip a coin. If it comes up heads, you win $500. If the coin comes up tails, you get nothing. What is the expected value of this game? How much would you pay to play this game? What accounts for the difference among students in the class?

13. Assume a typical rational investor is faced with two **ALTERNATIVE** investments:

**INVESTMENT A**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Probability</th>
<th>Weighted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$50</td>
<td>.10</td>
<td>$5</td>
</tr>
<tr>
<td>10</td>
<td>.80</td>
<td>8</td>
</tr>
<tr>
<td>(50)</td>
<td>.10</td>
<td>(5)</td>
</tr>
</tbody>
</table>

Expected Value $8

**INVESTMENT B**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Probability</th>
<th>Weighted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td>.10</td>
<td>$10</td>
</tr>
<tr>
<td>10</td>
<td>.80</td>
<td>8</td>
</tr>
<tr>
<td>(100)</td>
<td>.10</td>
<td>(10)</td>
</tr>
</tbody>
</table>

Expected Value $8

Which investment (A or B) would the typical rational investor prefer? Why?

Please show how you would go about calculating the variance and the standard deviation of each of the above two investments. You need not calculate the final figures.

14. Assume that last semester you took four 4-unit courses. You received grades of A, B, C, and D. Please calculate the variance of these grades.

15. Two professors teach "Introductory Taxation." You are a third year student who has no idea how you will do in this course. Both professors tend to give the same average grade. One professor's grades, however, have a much higher standard deviation than the other's. Which professor should you prefer? Why?

16. Which is a better predictor of future dividends: recent or present accounting earnings, **OR** recent or present dividends?
17.(a) What is a price-earnings ratio? Using "Yahoo finance," a recent copy of the Wall Street Journal, or other recent newspaper, please value General Motors stock using the average price/earnings ratios of two "comparable" companies. Please use at least one Japanese corporation. You may assume that the earnings per share of GM stock is $1 per share. What are some problems with your valuation method?

(b) What are some problems with using the average price-earnings ratio of "comparable" companies as the appropriate multiplier for the current returns on the stock being valued?

18. Assume the following: (1) the next dividend for Widget Inc. stock will be $4; (2) this dividend will grow at a constant rate of 5%; (3) the appropriate discount rate is 10%. What is the value of Widget stock? Hint: use the formula at p. 326 of Klein & Coffee and p. 82 {86} of Bratton). (At Bratton p. 82 {86}, the "d" in the formula is the next dividend, not the past one).

19. Suppose the United States Government issues two different types of notes: H and T. In a ceremony one year after issuance, Ms. Michelle Obama will flip a coin once. If the coin comes up heads, the Government will pay $2,000 on H notes and nothing on T notes. If the coin comes up tails, the Government will pay $2,000 on T notes and nothing on H notes. What will a smart investor do?

Suppose the Government issues C notes, which unconditionally pay $2,000 in one year. Assume that these C notes sell at $1,800 in the market. What would H and T notes sell for? Would there be any adjustment for risk? Assuming that C notes sell for $1,800, what would happen if H and T notes sell for $800 each?

20. For an investor with a diversified portfolio, is the relevant risk effect of an asset the future volatility of the asset itself? If not, what is the relevant risk effect?

21. What are the theoretical problems with applying the CAPM?

22. Assume that the stock market is irrational. Could the stock market still be semi-strong efficient? What would that mean?

23. If the stock market is semi-strong efficient, why engage in stock market analysis?

24. Assume that the expected rate of long-term inflation changes from 3% to 5% Please argue that this change need not affect the general level of stock prices. In other words, explain why, the overall stock market need not go down solely because expected inflation rises, contrary to "conventional wisdom."
25. Suppose the United States government sells a note entitling the bearer to the following. In a ceremony ten years from now, Ms. Michelle Obama will roll a die once.

If the die comes up 1 or 2, the bearer will get $1,000.
If the die comes up 3 or 4, the bearer will get $2,000.
If the die comes up 5 or 6, the bearer will get $3,000.

What is the expected value of what the bearer will receive in 10 years? Assuming the risk-free interest rate is 5%, what is the value of the note? How would one reflect the time value of money? How might one reflect risk?

Suppose another government note exists that matures in ten years and that has the following payoff. Ten years from now, a bureaucrat will roll a die once:

If the die comes up 1 or 2, the bearer will get $6,000.
If the die comes up 3 or 4, the bearer will get $2,000.
If the die comes up 5 or 6, the bearer will get $4,000.

Suppose this note is trading in the market at $2,000. How could one use the market price of this note to value the first note (the Michelle Obama note).

Assume that the government issues other notes based on a different die throw or issues other notes based on the same Michelle Obama die throw but with different payouts. How does this affect your valuation of the first Michelle Obama note?

Please use the CAPM to value the first Michelle Obama note.

26. You represent a client sued for $100,000,000 in a complex lawsuit that will likely take many years of expensive litigation to resolve. The plaintiff offers to settle for $40,000,000. How would you go about deciding whether to recommend that your client accept the offer? How would you decide on a dollar amount counter-offer to recommend?

27. What are some substantive areas of the law where present value analysis is useful? What are some legal implications of portfolio theory?
28. Assume that the management of Manna Corp. is presented with the following two possible investment projects, each of which costs $100, will generate returns for only two years, and has equal risk:

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Exp. Return Year 1</th>
<th>Exp. Return Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>$100</td>
<td>$80 (exp.value)</td>
<td>$80 (exp value)</td>
</tr>
<tr>
<td>Project 2</td>
<td>$100</td>
<td>$60 (exp.value)</td>
<td>$60 (exp value)</td>
</tr>
</tbody>
</table>

[Above returns are “expected values”; actual returns may be higher or lower.]

Assume that Manna Corp.'s "cost of capital" for equity is 20%. Assume that its "cost of capital" for debt is 10%. Assume that Manna has decided that a half-debt/half-equity capital structure is optimal.

Should Manna Corp. accept either or both of the projects?

Assume Manna Corp. publicly announces a decision to invest in Project 1. What effect will this announcement have on the dollar value of Manna's securities?

What does "cost of capital" mean? Why use it as the discount rate used in capital budgeting?

29. A corporation’s payment of dividends has a cost of trade-off. What is this cost or trade-off?