FINC 6532 - FINANCE
FINAL EXAM – FALL 2013

Name (please print) ____________________________

Instructions:
1) The part of the exam is closed book and closed notes. No scrap paper is allowed; use the back of the exam if necessary.
2) Read the entire exam before starting. The best strategy is generally to "cherry pick". In other words, solve the easiest (and/or most familiar) problems first. This will save time (and energy) that can be expended on the more difficult problems.
3) Partial points are based on readily observable evidence that you know at least part of the solution concept. The more evidence presented (and the clearer the evidence), the better the chance for partial points. In other words, SHOW ALL WORK!
4) If you have additional time remaining, give your work one last check.
5) True/False questions are worth 2 points. Multiple-choice questions are worth 3 points. Short answer questions usually take less than three sentences and are worth 4 points. Discussion Questions and Problems are worth the number of points listed in the question.

1. A financial manager of a corporation is considering different capital budgeting strategies for the coming year. From a financial management standpoint, which one of the following would be her capital budgeting optimal strategy?
   a. maximizing the investment in the capital budgets
   b. maximizing current year profits
   c. maximizing current year profits
   d. maximizing the current value of the stock
   e. minimizing the Weighted Average Cost of Capital

2. If Wolves Entertainment Company is acting in the best interests of stockholders (following the primary goal of the firm), which of the following is the optimal (best) capital structure for the firm?
   a. Debt = 40%, Dividend = $2.0
   b. Debt = 50%, Dividend = $2.25
   c. Debt = 60%, Dividend = $3.00
   d. Debt = 70%, Dividend = $3.50
   e. Debt = 80%, Dividend = $3.00

3. Based on the 1926-2010 data, which one of the following statements is most correct?
   a. The lower the volatility of returns, the greater the risk premium.
   b. The risk premium is unrelated to the average rate of return.
   c. The lower the average return, the greater the risk premium.
   d. The risk premium is not affected by the volatility of returns.

4. Five years ago an investor purchased a stock for $25.00 which had a book value of $10.00, a par value of $1.00, and an annual dividend of $1.25. Today, i.e. five years after the purchase, the book value has doubled to $20.00, while the par value, market value, and dividend are unchanged. For this stock, the required return is 10%. Based on this information, which of the following answers is correct:
   a. The market value is unchanged, the firm has been profitable over the past five years.
   b. Since the book value doubled, the five year total return exceeds 15%.
   c. Since the par value is unchanged, the firm has been profitable over the past five years.
   d. The actual annual return on the investment over the five years is 10%.
   e. The capital gain on this stock over the 5 years is $0, i.e. the capital gains yield on this stock is 0%

5. Which of the following statements about stock valuation is most correct?
   a. All dividends, including the one just paid (i.e., Do), must be included in the calculation of today's stock price.
   b. It is impossible to value a stock with a negative growth rate.
   c. The price of a share of stock of a company that currently pays no dividend must be zero.
   d. If a stock is expected to pay a constant dividend forever, then its price should never change, provided that the required rate of return stays the same.
   e. In the constant dividend growth model, the required rate of return is equal to the dividend yield minus the capital gain yield.

6. Which one of the following methods determines the amount of the change a proposed project will have on the value of a firm?
   a. net present value
   b. discounted payback
   c. internal rate of return
   d. profitability index
   e. payback

7. List two advantages of NPV as compared to Payback.
   a. considers all cash flows
   b. considers the TUM
   c. considers risk
   d. works for non-normal cash flows

     considers all cash flows
     considers the TUM
     considers risk
     works for non-normal cash flows
8. The two cardinal rules which financial analysts follow to avoid capital budgeting errors are: (1) capital budgeting decisions must be based on accounting income, and (2) only incremental cash flows are relevant to accept/reject decisions.
   a. True  b. False

9. Which one of the following is an example of a sunk cost?
   a. $1,500 of lost sales because an item was out of stock  
   b. $1,200 paid to repair a machine last year  
   c. $20,000 project that must be forfeited if another project is accepted  
   d. $4,500 reduction in current shoe sales if a store commences selling sandals  
   e. $1,800 increase in comic book sales if a store commences selling puzzles

10. Two investment opportunities have the same total cash flows. The cash flows consist of a negative cash flow in year 0, followed by a series of cash inflows. This means that with a discount rate of 0%, their cash flows have the same sum. Choose the combination from the following three aspects of capital budgeting that will give the highest Net Present Value (hint, change each of the aspects one at a time, assume the projects are identical except for this change). CHOOSE THE BEST ANSWER.

<table>
<thead>
<tr>
<th>Salvage Value</th>
<th>Depreciation (to zero salvage value)</th>
<th>Cost of Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>4. straight line</td>
<td>7. high cost</td>
</tr>
<tr>
<td>Low</td>
<td>5. MACRS</td>
<td>8. low cost</td>
</tr>
<tr>
<td>does not matter</td>
<td>6. does not matter</td>
<td>9. does not matter</td>
</tr>
</tbody>
</table>

   a. 2, 5, 9.  b. 2, 5, 8  c. 1, 4, 7.  d. 2, 4, 7.  e. 3, 4, 9.  f. 1, 5, 8.  g. 3, 4, 7

11. Which of the following variables will be at their highest expected level under a worst case scenario?

   I. fixed cost  
   II. sales price  
   III. variable cost  
   IV. sales quantity

   a. I only  b. II only  c. III only  d. IV only  e. I and III only  f. I, III, and IV only

12. An analysis of the change in a project's NPV when a single variable is changed is called ______ analysis

   a. forecasting  b. scenario  c. simulation  d. sensitivity  e. break-even

13. Consider a typical firm that uses debt, preferred stock, and equity in its capital structure. For this typical firm with a given capital structure, which of the following is correct? (Note: All rates are after taxes.)

   a. cost of debt > cost of preferred stock > cost of stock  
   b. cost of debt > cost of stock > cost of preferred stock  
   c. cost of stock > cost of debt > cost of preferred stock  
   d. cost of preferred stock > cost of debt > cost of stock  
   e. none of the above is correct.

14. For a high risk project in Company A, we should use a cost of capital that is greater than the Company A's WACC.
   A) True  B) False
1. (5 points) A stock you are interested in paid a dividend of $1 last year. The anticipated growth rate in dividends and earnings is 25% for the next 2 years before settling down to a constant 5% growth rate. The discount rate is 12%. Calculate the expected price of the stock. (rounded to the nearest $.01)

\[ PV = \frac{D_1}{1+r} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^2} \times \frac{1}{r-g} \]

\[ PV = \frac{1}{1.12} + \frac{1.25 \times 1.25}{(1.12)^2} + \frac{1.56 \times 1.25}{(1.12)^2} \times \frac{1}{0.12 - 0.05} \]

\[ NPV = (12.0 \times 1.25 \times 1.05 + 23.49) = 21.54 \]

\[ \text{Expected Price} = \frac{21.54 \times (1.12 - 0.05)}{0.12 - 0.05} \]

2. (4 points) The common stock of Darkover Inc. just paid an annual dividend of $1.00. The dividend is expected to grow at a constant rate forever. The required rate of return for this stock is 13.9 percent. If the current price of the stock is $33.98 what is the expected growth rate of the dividends? Give your answer to the nearest .1%.

\[ \frac{D_1}{P_0} = \frac{g}{r - g} \]

\[ \frac{1.00}{33.98} = \frac{g}{0.139 - g} \]

\[ g = \frac{0.72}{33.98} = 21.98\% \]

3. Ypsilanta Inc. has the following financing outstanding.
   • 60,000 bonds with a 6% coupon, semi-annual compounding, principal = $1,000, price = 125% of par, 10 years maturity
   • 1,000,000 shares of common stock, price = $100, beta = 1.25, Last dividend = $4, Growth Rate = 6%

Additional information: Tax rate = 30%, return on the market portfolio = 9%, risk-free rate = 3%

Calculate the following numbers, to your nearest .1%:

a) The weight of debt? (3 points)

\[ \text{Weight of Debt} = \frac{60,000 \times 125}{750,000,000 + 100,000,000} = 0.042 \] or 4.2%

b) What is the cost of debt? (3 points)

\[ P_0 = 12.50 \]
\[ P_{M} = 60 \times 2 = 38 \]
\[-U = 100 \]
\[ n = 16 	imes 2 = 20 \]
\[ \text{Cost of Debt} = \frac{3.08}{2} \times 100 = 1.54% \]

c) The cost of common stock using the constant growth model? (3 points)

\[ \frac{1.00}{1.00} + 0.06 = 10.79\% \]

d) The cost of common stock using the CAPM? (3 points)

\[ \frac{1.00}{3} + 1.25(9-3) = 10.50\% \]

e) The weighted average cost of capital using the CAPM estimate of the cost of equity? (3 points)

\[ WACC = (12.86\% \times 3.08\%) (1-30\%) + (1 - 42.86\% \times 10.50\%) \]

\[ = 6.92\% \]
4. (4 points) Winter's Toyland has a debt-equity ratio of 0.65. The pre-tax cost of debt is 8.7 percent and the required return on assets is 16.1 percent. What is the cost of equity if you ignore taxes? Calculate your answer to the nearest .01%

\[ D = 0.65 \Rightarrow \frac{1}{1.05} = 37.9\%
\]

5. (4 points) In an M&M with taxes world, the June Bug has a $270,000 perpetual bond issue outstanding. These bonds have a 7.5 percent coupon, and are selling at par. The June Bug tax rate is 39 percent. What is the value of the firm's tax shield?

\[ 270,000 \times (1 - 0.39) = 161,700
\]

7. (3 points each) Consider the following cash flows, with a discount rate of 8%.

<table>
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<tr>
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<th>Cash Flow</th>
</tr>
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<tr>
<td>0</td>
<td>-$98</td>
</tr>
<tr>
<td>1</td>
<td>-$41</td>
</tr>
<tr>
<td>2</td>
<td>$58</td>
</tr>
<tr>
<td>3</td>
<td>$77</td>
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<tr>
<td>4</td>
<td>$91</td>
</tr>
<tr>
<td>5</td>
<td>$40</td>
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</table>

a. What is the payback period? The company uses a 4 year payback acceptance rule. Based only on this 4 year decision rule, should the firm accept the project?

between 3.54 years, Accept

b. What is the Internal Rate of Return? Based only on this decision rule, should the firm accept the project?

\[ \text{IRR}(-98, -41, 58, 77, 91, 403) = 23.7\% \]

Accept

c. What is the Net Present Value? Based only on this decision rule, should the firm accept the project?

\[ \text{NPV}(8, -98, -41, 58, 77, 91, 403) = 69.00 \]

Accept

d. What is the Profitability Index? Based only on this decision rule, should the firm accept the project?

\[ \frac{69}{98} + 1 = 1.70 \]

Accept

8. In the past five years, Trecco Inc. has spent $6 developing a potential product. The project, if accepted, will last for four years. Now the company has decided to start production and to evaluate the following project proposal:

The project will require the purchase of a machine that will cost $40, have $2 in shipping costs, and an additional $18 in installation and modifications. The equipment is in the 7-year MACRS class. The purchase of the machine and associated assets will require an increase in inventory of $4, an increase in account payable of $3, and an increase in accounts receivable of $5. In year one, there will be another $3 increase in inventory and $1 increase in receivables. All working capital will be recovered in the final year (i.e. the fourth year) of the project. The machine will increase the firm's sales by $54 per year, but will also increase cost of goods sold by $20% of sales. Labor costs will increase by $10 per year. We will rent a new building to store the machine and finished product, the rent is $10 per year. The accountants have classified the cost of goods sold and rent costs as variable costs. The labor costs are classified as overhead. The machine is expected to be used for 4 years, and then sold for 65% of the total purchase investment. The firm's marginal tax rate is 25% and the project's cost of capital is 15%. Use the following MACRS rates for 7-year property: 14%, 24%, 17%, 12%, 10%, 9%, 9%, 5%.
Trefco  
Newnan Fall 2013  

I used this handout to solve, http://www.westga.edu/~chodges/pdf/capbudhint.pdf

<table>
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<tr>
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<td>13.00</td>
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<tr>
<td>=Operating Cash Flow</td>
<td>19.50</td>
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<td>19.95</td>
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<tr>
<td>Tax Impact</td>
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<td></td>
<td>-4.80</td>
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<tr>
<td>Recovery of New Working Capital</td>
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<td></td>
<td></td>
<td></td>
<td>9.00</td>
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<tr>
<td>Replace Tax</td>
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<tr>
<td>Total Cash Flows</td>
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<td>16.50</td>
<td>21.00</td>
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NPV@15% = $13.02

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<td>10%</td>
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</tr>
<tr>
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<tr>
<td>7</td>
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