Corporate Finance: Final Exam

Answer all questions and show necessary work. Please be brief. This is an open books, open notes exam.

1. You are reviewing the beta calculation for Nividia Inc, a publicly traded company. The beta of 1.75. was obtained from a 5-year regression of stock returns against a market index and you believe that notwithstanding the unreliability of regression betas that this is a good estimate of the beta of the company over the period. During the entire five-year period, Nividia maintained a debt to equity ratio of 50% and was in two businesses – chemicals and steel. In the last week, though, the company has gone through a major restructuring, selling off its steel business and using some of the cash to buy back stock and some of it to retire debt. The tax rate for the firm is 40%.
   a. Estimate the unlevered beta for the company before the restructuring based upon the regression. (1 point)
a. Now assume that the steel business (which has been sold off) represented 30% of the total value of the firm and the unlevered beta for steel companies is 0.80. One third of the cash from the divestiture was used to pay down debt and the other two thirds was used to pay a special dividend. Estimate the beta for Nvidia after the restructuring. (5 points)
1. You have been asked to review an investment analysis of a 10-year project with a big upfront investment of $15 million and equal annual after-tax cashflows for the next 10 years. The analyst has estimated a net present value for the project of $2 million, using the cost of equity of the firm of 12% as the discount rate. You notice three errors in the valuation:

   a. The cashflows being discounted are after taxes but before debt payments (interest and principal). The after-tax cost of debt for the firm is 4% and the firm has a debt to capital ratio of 30%.
   
   a. The analyst has depreciated the initial investment of $15 million straight line over 10 years to a salvage value of zero. You agree with the straight line depreciation but you believe that the asset should be depreciated down to an expected salvage value at the end of the 10th year of $3 million.
   
   c. The project is expected to have revenues of $20 million each year for the next 10 years and the non-cash working capital is expected to be 10% of the revenues over the entire period, with the investment in working capital being made at the beginning of each year. This investment will be fully salvaged in year 10. The tax rate is 40%.

   a. Given the estimates of net present value and assumption of no salvage, what was the analyst’s estimate of annual after-tax cash flow on the project? (2 points)
b. What is the correct net present value for the project? (Make the necessary corrections to the cashflows and discount rates for the three errors noted on the last page) (4 points)
2. Luminos Inc. is a motion picture production company. At the end of its most recent financial year, the firm had $800 million in interest bearing debt on its books (with interest payments of $60 million a year and an average maturity of 10 years). The firm has a rating of B+ and a pre-tax cost of debt of 8%. There are 100 million shares trading at $6 per share and the levered beta for the firm is 2.50. The tax rate is 40%, the riskfree rate is 4% and the market risk premium is 4.82%.

   a. Estimate the current cost of capital for the firm. (2 points)
b. Assume now that Luminos Inc. is able to issue enough stock to retire half of its outstanding debt (in market value terms). If the stock price does not change after this transaction, estimate the pre-tax cost of debt after the transaction. (4 points)
4. You have been asked to compare the dividend policies of three firms in the same business and have collected the following information on them for the most recent year:

<table>
<thead>
<tr>
<th></th>
<th>Halifax</th>
<th>Donnelly</th>
<th>Rutland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income</td>
<td>$ 100 m</td>
<td>$ 80 m</td>
<td>$ 50 m</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>$ 150 m</td>
<td>$ 60 m</td>
<td>$ 30 m</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$ 60 m</td>
<td>$ 30 m</td>
<td>$ 15 m</td>
</tr>
<tr>
<td>Increase in Non-cash Working Capital</td>
<td>$ 10 m</td>
<td>$ 10 m</td>
<td>$ 5 m</td>
</tr>
<tr>
<td>Debt to Capital Ratio</td>
<td>0%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Dividends</td>
<td>$ 0</td>
<td>$ 40 m</td>
<td>$ 30 m</td>
</tr>
</tbody>
</table>

a. Assuming that these companies each started the most recent year with $ 10 million in cash balances, estimate the cash balances at the end of the year.

(2 points)
b. If Halifax had maintained the same debt ratio as the other two companies, how much could it have paid out in dividends in the most recent year without drawing on its starting cash balance? (2 points)

c. Assume that Rutland expects its net income to double next year while net capital expenditures will increase by 50% and non-cash working capital will increase by $15 million. If the company wants to increase its cash balance by $20 million next year and maintain its existing debt to capital ratio, how much can it afford to pay in dividends next year? (2 points)
5. You have been asked to value Flavio Enterprises, a publicly traded firm and have collected the following information on the firm:
   After-tax Operating income in most recent year = $72 million
   Net Income in most recent year = $64 million
   Book Value of Debt at the start of the year = $200 million
   Book Value of Equity at the start of the year = $400 million
   Capital Expenditure in most recent year = $60 million
   Depreciation in most recent year = $20 million
   Increase in non-cash Working capital in most recent year = $10 million
   a. If you assume that Flavio will maintain the return on capital and reinvestment rate that it had in the most recent year for the next 3 years, estimate the expected free cashflow to the firm each year for the next 3 years. (2 points)
b. After year 3, Flavio expects the growth rate to decline to 3% and the return on capital to be 9% in perpetuity. If the cost of capital after year 3 is 8%, estimate the value at the end of the third year (terminal value). (2 points)

c. Flavio is expected to have a cost of capital of 10% for the next 3 years. If Flavio has 100 million shares outstanding and $400 million in debt, estimate the value of equity per share today. (2 points)