Valuation: Final Exam

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

1. You are valuing a bank and have estimates of risk adjusted assets, return on equity and targeted regulatory capital ratios for the next three years:

	Most recent year	1	2	3
Risk adjusted Assets (in millions of $)	1000	1100	1150	1200
Return on equity (ROE)	8%	10%	12%	12%
Regulatory Capital - % of Risk adjusted Assets	10%	12%	14%	15%

Assume that book equity = regulatory capital

After year 3, the bank will continue to grow its risk adjusted assets at 3% a year (forever) and maintain its ROE and regulatory capital ratio from year 3. If there are 250 million shares outstanding and an additional 25 million options that can be exercised at $5/share, estimate the value per share, if the cost of equity is 10%. (4.5 points)

2. You are trying to compute the value of brand name at Georgio's, a designer brand apparel company and have been given the following information (with revenues and operating income in millions of US$.) about Giorgio's and a leading generic apparel company:

	Georgio's	Everyman's Apparel
Revenues	$5,000.00	$8,000.00
Operating Income (after tax)	$750.00	$480.00
Sales/Invested Capital	2.00	2.00
Cost of capital	8%	9%
Expected growth rate	3%	3%

Estimate the value of Giorgio's brand name.   (4.5 points)

3. You have been given the task of pricing a multi business company, composed of the following businesses (with dollar values in millions of US dollars):

Division	Revenues	EBITDA	Net Income	Book Equity	Net Debt
Hotels	$1000	$250	$100	$800	$400
Travel	$500	$200	$80	$800	$200
Financial Services	NA	NA	$40	$400	$1600

You have been able to run regressions for companies in the hotels and travel businesses and arrived at the following "best' fit regressions:

Hotels: EV/Sales = 0.75+14*(EBITDA/Sales)-2.5*(Net Debt/ Book Equity)

Travel: EV/EBITDA =3+20*(EBITDA/Sales)-8*(Net Debt/ Book Equity)

If the company has 200 million shares trading at $25/share and you believe that the pricing you get from the regressions are fair estimates for the pricing of the divisions in those sectors, what multiple of book value is the financial service business being priced at by the market?   (3 points)

4. You are trying to value synergy in a merger and have been provided with the information on both the acquiring and target firms (with all absolute values in millions of US$)

	Capri Inc. (Acquirer)	Colma Inc. (Target)
Expected Revenues next year	$1000	$800
Expected EBIT (1-t) next year	$100	$40
Invested Capital	$500	$500
Expected growth rate forever	2%	2%
Cost of capital	8%	10%

   a. Estimate the value of Capri, as a stand alone business. (1 point)

   b. Estimate the value of Colma as a stand alone business (1 point)

c. The combined firm is expected to invest $200 million in capital immediately after the merger and <u>push up the operating margin for the combined firm to the acquiring firm level</u> for next year, while facing a cost of capital of 9%. Estimate the value of synergy in this merger. (2.5 points)

5. Goshen Inc. is considering an acquisition of Sweeney Corp. The information on the two companies is provided below (with absolute values in $ millions):

	Goshen	Sweeney
Market capitalization	$20,000	$10,000
EV/Invested Capital	0.80	0.50
Cost of capital	9%	9%
Expected growth rate forever	3%	3%

You can assume that the companies are correctly priced today. Goshen believes that the combined firm's operating income will jump 50% next year, if the merger goes through, but that the invested capital, cost of capital and the expected growth rate are not likely to change. Estimate the EV/Invested Capital Ratio for the combined firm, after the acquisition.   (4.5 points)

6. You are examining the financial statements of Kapaski International, a company in two businesses, steel and technology, with numbers reflecting existing management.

	Steel	Technology
Expected EBIT (1-t) next year	$80	$120
Invested Capital	$1600	$600
Expected growth rate forever	2.5%	2%
Cost of capital forever	7.5%	10%

You believe that if you ran the company, you would reinvest nothing in the steel business and double your reinvestment rate in the technology business. Estimate how much the value would increase if you did this? (You can assume that there is nothing you can do to change the returns on capital at either business) (3 points)

7. You have been asked to estimate the value of a patent, using real options, and have collected the following information on the license:
   a. The company <u>acquired the 20-year patent five years ago</u> for <u>$50 million</u>.
   b. The company has not commercialized the patent, but believes that if it did so today, it <u>would cost it $1.5 billion and that the expected NPV of the project will be -$200 million</u>.
   c. The market is changing and you have estimated a <u>standard deviation of 30%</u> in the operating cash flows on the investment.
   d. The cost of capital for the company is 9%, the pre-tax cost of debt is 4% and the risk free rate is 3%.

Estimate the value of the patent as an option.   (3 points)

S =

K =

Life of the option =

r =

Standard deviation =

Dividend yield (Cost of delay) =

8. Sumeira Inc. is a troubled and highly levered company and your DCF valuation for the company yields a <u>value of $1 billion</u> for its assets, but it has debt outstanding with a <u>face value of $1.5 billion</u> and a <u>weighted average duration of 5 years</u>. You have input the relevant numbers into an option pricing model and arrived at the following intermediate values:

d1 =	0.3305	d2 =	-0.7875
N(d1) =	0.6295	N(d2) =	0.2155

If you value the equity in the company as an option, <u>estimate the interest rate on the firm's debt</u>. (The riskfree rate is 3%)   (3 points)