



TO: GBUS 752 Valuation Students
FROM: Professors Bob Harris and Michael Ho
DATE: May 8, 2007
SUBJECT: Final Exam

Attached you will find a set of four (4) short problems that are based on the second module of the course regarding enterprise valuation.

Logistics

1. The final exam is due in hardcopy form no later than Friday, May 11, 2006 by **5:00 pm** Eastern Daylight Time.
1. No exams will be accepted after 5:00 pm.
1. Submit your completed exams in the boxes by section outside Ginny Fisher's office (FOB 282).

Instructions

1. Starting from the time you open the exam file, you have **five hours** to complete the exam.
1. **The work is to be done on an individual basis.**
1. You may use any notes or references you wish as long as it is not material provided by someone who has completed this course. In addition, you may use any spreadsheet that **you have built** during the course or in preparation for the exam. You **may not** use any spreadsheet prepared by someone else.
1. If you feel a question is unclear or does not provide you with all of the data that you feel you need, please note as such and state clearly what assumptions you are making. However, be aware that each question should contain sufficient information to complete without requiring additional outside data.
1. Note that the total point values of the questions sum to 100.
1. The honor code applies.
1. *Please note that the data given for a specific problem are independent from the data for the other problems, e.g., the data provided in Question One are only to be used for Question One.*

Formatting

1. Exams may be submitted as computer printout, handwritten, or a combination of both.
1. Please fill out the cover sheet and put the last six digits of your social security or student code on **each** page that you hand in.
1. Answer each question on a separate sheet (or sheets) of paper, **single-sided only**, and organize your questions in problem order.
1. Retain (show) at least **three places** to the right of the decimal in all your calculations and answers (e.g., \$xx.xxx or y.yyy%) - you will be penalized points if you do not.

Partial Credit

In order to maximize the possibility of receiving partial (if not complete) credit:

- Clearly state your assumptions.
- Clearly identify your inputs.
- Clearly identify your answer (e.g., highlight, circle, bold, etc.).
- Show your work and/or thought process – if we cannot follow how you derived your answer, you will not receive partial credit.
- Be as neat and tidy as time allows.

**Valuation Final Exam
Spring 2007**

Name _____

SSN (last 6 digits) _____

Signature _____

Section _____

Pledge: On my honor as a student I have neither given nor received help on this exam and I have not exceeded the allowed time of five hours.

Question 1: Cash Flows (25 points)

Your client has provided you with its forecasted Statement of Cash Flows, a portion of which follows:

	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>
Cash Flows from Operating Activities			
Earnings Before Interest and Taxes	\$ 38.750	\$ 46.500	\$ 53.480
Interest Expense	<u>(13.640)</u>	<u>(18.410)</u>	<u>(20.260)</u>
Earnings Before Taxes	25.110	28.090	33.220
Income Taxes @ 40%	<u>(10.044)</u>	<u>(11.236)</u>	<u>(13.288)</u>
Net Income	15.066	16.854	19.932
Addback Depreciation and Amortization	8.950	11.380	12.720
(Increase) Decrease in Trade Receivables	6.150	(2.600)	(18.490)
(Increase) Decrease in Inventory	(15.960)	0.620	(9.070)
Increase (Decrease) in Accounts Payable	<u>3.820</u>	<u>(1.300)</u>	<u>5.480</u>
<i>Net Cash Provided by Operating Activities</i>	18.026	24.954	10.572
Cash Flows from Investing Activities			
Additions to Fixed Assets	<u>(25.340)</u>	<u>(7.690)</u>	<u>(12.500)</u>
<i>Net Cash Used in Investing Activities</i>	(25.340)	(7.690)	(12.500)
Cash Flows from Financing Activities			
(Repayment) Borrowings under Line of Credit	5.340	(8.660)	9.640
Preferred Stock Dividends	(3.600)	(4.000)	(4.200)
Issuance of Common Stock	12.000	-	4.000
Common Stock Dividends	<u>(1.500)</u>	<u>(1.580)</u>	<u>(1.650)</u>
<i>Net Cash Provided by Financing Activities</i>	12.240	(14.240)	7.790
Net Increase (Decrease) in Cash	<u>\$ 4.926</u>	<u>\$ 3.024</u>	<u>\$ 5.862</u>

Weighted Average Cost of Capital (“WACC”) Methodology

- When using the WACC methodology, what is the name(s) of the cash flows that are valued?
- Derive the cash flows (for Years 6 – 8) that would be part of a WACC valuation.

Adjusted Present Value (“APV”) Methodology

- When using the APV methodology, what is the name(s) of the cash flows that are valued?
- Derive the cash flows (for Years 6 – 8) that would be part of an APV valuation.

Equity Residual (“ER”) Methodology

- When using the ER methodology, what is the name(s) of the cash flows that are valued?
- Derive the cash flows (for Years 6 – 8) that would be part of an ER valuation.

Question 2: Discount Rates (12 points)

Consider the following information about your company, Subject Company, Inc., and selected capital market information:

Subject Company, Inc.

Debt / (Debt + Equity)	30.00% (based on market values of debt and equity)
Current Debt Rating	Bb
Tax Rate	50.0%

Selected Market Data

Government Treasuries

3 month	3.75%
30 year	5.50%

Corporate Debt

Aa	6.00%
A	6.25%
Bbb	6.50%
Bb	8.25%
B	9.50%

Forecasted Market Risk Premium

Eades and Associates	6.00%
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In addition, assume that Subject Company's financial strategy is at steady state and that the dollar debt levels in any given year are a fixed function (i.e., a constant percentage) of the accounts receivable and inventory levels for that period. (For the purposes of this problem, assume that the accounts receivable and inventory levels are perfectly correlated with the company's enterprise cash flows.)

Finally, consider The Perfect Comp Corp., a company that is identical in all respects to Subject Company *except* for its financial strategy:

The Perfect Comp Corp.

Debt / (Debt + Equity)	55.00% (based on market values of debt and equity)
K_e (cost of equity)	23.25% (as per Yahoo! Finance)
Current Debt Rating	Not Rated
Tax Rate	25.00%

WACC Methodology

- What is the name of the discount rate(s) used in the WACC methodology?
- What is the appropriate discount rate(s) (in %) to use when valuing Subject Company via the WACC methodology?

APV Methodology

- What is the name of the discount rate(s) used in the APV methodology?
- What is the appropriate discount rate(s) (in %) to use when valuing Subject Company via the APV methodology?

ER Methodology

- e. What is the name of the discount rate(s) used in the ER methodology?
- f. What is the appropriate discount rate(s) (in %) to use when valuing Subject Company via the ER methodology

Question 3: Terminal Values (18 points)

Consider the following forecasted information:

	2007	2008	2009	2010	2011	2012
Sales	\$ 74.00	\$ 77.70	\$ 81.59	\$ 85.66	\$ 89.95	\$ 94.45
Earnings Before Interest and Taxes	11.100	11.655	12.238	12.850	13.492	28.333
Interest Expense	(2.200)	(2.310)	(2.750)	(2.530)	(2.970)	(2.640)
Earnings Before Taxes	8.900	9.345	9.488	10.320	10.522	25.693
Taxes (@ 40%)	(3.560)	(3.738)	(3.795)	(4.128)	(4.209)	(10.277)
Net Income	5.340	5.607	5.693	6.192	6.313	15.416
Depreciation Expense	1.538	1.615	1.696	1.781	1.870	1.964
Decrease (Increase) in Net Working Capital	(0.881)	(0.925)	(0.971)	(1.020)	(1.071)	0.030
<i>Cash Flow from Operating Activities</i>	5.997	6.297	6.418	6.953	7.112	17.410
Capital Expenditures	(2.331)	(2.448)	(2.570)	(2.698)	(2.833)	(2.975)
<i>Cash Flow from Investing Activities</i>	(2.331)	(2.448)	(2.570)	(2.698)	(2.833)	(2.975)
Increase (Decrease) in Total Debt	1.000	4.000	(2.000)	4.000	(3.000)	6.000
Increase (Decrease) in Common Stock	3.000	(2.000)	0.816	0.857	0.899	0.944
Common Stock Dividends	(0.510)	(0.536)	(0.562)	(0.590)	(0.620)	(0.651)
<i>Cash Flow from Financing Activities</i>	3.490	1.464	(1.746)	4.267	(2.721)	6.293
<i>Change in Cash Balance</i>	\$ 7.156	\$ 5.313	\$ 2.102	\$ 8.522	\$ 1.558	\$ 20.728
Total Debt (Ending Balance)	\$ 21.000	\$ 25.000	\$ 23.000	\$ 27.000	\$ 24.000	\$ 30.000

Assume that the company expects to have reached a steady state in its operating strategy and financial strategy by the end of 2012 and that the management expects the following steady state conditions:

Target D / (D + E) at Steady State	45.00%
Steady State Growth in Perpetuity	5.00%
Ke at Target Capital Structure	22.00%
Kd at Target Capital Structure	11.00%
Tax rate in perpetuity	40.00%

Finally, assume that the current capital market conditions will continue in perpetuity:

Selected Market Data

Government Treasuries

1 month	4.00%
20 year	5.00%

Forecasted Market Risk Premium

Eades and Associates	6.00%
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Estimate the appropriate terminal value(s) to be reflected (in the terminal year) in each of the following enterprise valuation methodologies. Be clear as to (i) whether your terminal value is an enterprise or equity value, and (ii) the year (i.e., Excel column) in which you will put the estimated terminal value.

- WACC methodology
- APV methodology
- ER methodology

Question 4: ER Methodology (40 points)

After a long and exhausting final exam, you come to the last question. In an uncharacteristic flash of compassion, the individual that created the exam decides not to require you to derive a series of forecasted cash flows. Instead, you are *given* the following forecasted cash flows (“The Given Cash Flows”) and debt balances for Another Subject Company, Inc. and assured that they have been correctly derived for use in the Equity Residual Methodology.

	<u>Today</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
The Given Cash Flows	\$	2.570	\$ (8.300)	\$ 6.880	\$ 19.360	\$ 27.840
Debt (Ending Balance)	\$	0.000	\$ 13.000	\$ 5.000	\$ 37.000	\$ 65.000
			\$ 115.500			

In addition, consider the following information on Another Subject Company, Inc. and its perfect comparable, The Other Perfect Comp Corp. and the current capital market conditions. Please note that The Other Perfect Comp Corp. is identical in all respects to Another Subject Company, Inc. *except* for its financial strategy.

Another Subject Company Corp.

Target Debt / (Debt + Equity) at Steady State	25.00%
Kd (cost of debt)	14.00%
Tax Rate	40.00%

The Other Perfect Comp Inc.

Current Debt / (Debt + Equity)	15.00%	(based on market values of debt and equity)
Kd (cost of debt)	12.50%	
Ke (cost of equity)	25.00%	(as per Yahoo! Finance)
Tax Rate	55.00%	

Selected Market Data

Government Treasuries

3 month	4.50%
30 year	6.50%

Forecasted Market Risk Premium

Eades and Associates	6.00%
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Finally, in yet another display of leniency, the test creator lets it slip that the enterprise value at the end of Year 5 is/will be \$350.000.

- What are the appropriate discount rate(s) to apply to these cash flows when using the ER Methodology?
- What is your estimate of the current (i.e., today, at Time = 0, at the beginning of Year 1) Equity Value? Enterprise Value?
- Write out the formula that you used in part (b) above that pertains to Year 4.
- If you valued Another Subject Company, Inc. using the WACC methodology (as taught in FMP), what capital structure assumption would you use? Would the enterprise value estimate from your WACC valuation be higher or lower than the “correct” enterprise value? Explain *briefly*. Note: you do **not** have to calculate any numbers for this part of the question. Just think it through and apply your intuition to formulate your answer.

5 points reserved for clarity of presentation and analysis.