

MIDTERM

Finance 70610 – Equity Valuation

Mendoza College of Business
Professor Shane A. Corwin
Fall Semester 2009 - Module 2

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NAME _____

If you want your scores posted, please provide a 4-digit ID# and initial here _____

INSTRUCTIONS:

1. You have 110 minutes to complete the exam.
2. The exam is worth a total of 100 points.
3. Allocate your time wisely. Use the number of points assigned to each problem as your guide.
4. In order to get full credit on the problems, you must show ALL your work!
5. You may use a calculator and a formula sheet. Please put your name on your formula sheet and hand it in with your exam.

Multiple Choice (20 points)

Choose the best answer for each of the following questions. The questions are worth 4 points each.

1. In order to complete your valuation, you have decided to estimate an industry Beta for your firm. Your firm has a debt-to-equity ratio of 60% and a marginal tax rate of 40%. For the set of comparable firms in the industry, you calculate an average equity Beta 1.3, an average debt-to-equity ratio of 25%, and an average marginal tax rate of 40%. Based on this information, the appropriate equity Beta for your firm equals:
 - a) 1.130
 - b) 1.231
 - c) 1.357
 - d) 1.537

2. You are valuing an international conglomerate that generates 50% of its revenues in the U.S. and 50% of its revenues in Europe. To complete the valuation, you have decided to convert all of the earnings and resulting cash flows to \$U.S. The yield on long-term U.S. Government Treasury Bonds is 3.4% and the yield on long-term Euro-denominated bonds issued by Germany is 3.7%. Assuming both rates are free of default risk, which of the following statements is most accurate?
 - a) You should use a risk-free rate of 3.4% in the cost of equity calculation
 - b) You should use a risk-free rate of 3.7% in the cost of equity calculation
 - c) You cannot convert cash flows to a different currency in a valuation
 - d) Converting cash flows to Euro will result in a lower valuation due to the higher risk-free rate
 - e) None of the above are accurate

3. The Bloomberg description page reports a Beta for your firm of 1.4. What is the regression Beta for this firm?
 - a) 1.267
 - b) 1.600
 - c) 1.783
 - d) 1.400

4. During fiscal year 2008, your firm completed an acquisition for a total price of \$785 million. The net value of the acquired firm's assets equals \$415 million. Which of the following statements best describes the GAAP accounting rules for recording the goodwill associated with this acquisition?
 - a) Your firm can use either purchase or pooling accounting to determine goodwill
 - b) Your firm will record goodwill of 370 million and amortize it over 40 years
 - c) Your firm will record \$785 million in goodwill and amortize it over 15 years
 - d) Your firm will record 370 million in goodwill and test it annually for impairment
 - e) None of the above, your firm will not record any goodwill

5. Consider a firm with operating income of \$900 million, a tax rate of 30%, and a cost of debt equal to 7%. You estimate the value of operating lease debt for this firm to be \$2.2 billion. Based on this information, the adjusted value of after-tax operating income after adjusting for operating leases equals:
- a) \$630.0 million
 - b) \$784.0 million
 - c) \$737.8 million
 - d) \$1007.8 million

Problems (80 points)

Answer each of the questions below completely. You must show ALL your work to get full credit.

6. **Financial Ratio Analysis (10 points):**

The financial statements for Borders Group are provided at the end of this exam. Using this information, calculate the Return on Equity (ROE) for Borders in the most recent fiscal year. Demonstrate (by calculating each of the individual ratios) that ROE is a function of profit margin, asset turnover, and financial leverage.

7. **Implied Equity Premium (12 points):**

- a) You estimate that the average forward P/E ratio for stocks in the S&P 500 is 19.6, the average return on equity (ROE) for S&P 500 stocks is 16.0%, and the average long-term earnings growth rate for S&P 500 stocks is 4.5%. In addition, the yield on 10-year Treasury Bonds is 3.4%. Based on this information and the implied premium formula we discussed in class, calculate the implied equity risk premium for the U.S. market?
- b) Some analysts suggest that the U.S. equity premium can be approximated by the inverse of the market P/E ratio. Using the implied equity premium formula we discussed in class, briefly describe the two assumptions that would be necessary in order for the equity premium to equal the inverse of the P/E ratio and whether or not these assumptions are sensible.

8. **Discounted Cash Flow Analysis (24 points):**

You are valuing XYZ corporation using a DCF model. The Free Cash Flow to the Firm (FCFF) for the most recent fiscal year was \$80 million. You expect these cash flows to grow at a rate of 4% for the next eight years. After these eight years, you expect cash flows to decrease at a ratio of 1% per year in perpetuity.

The firm has 60 million shares outstanding and a current stock price of \$10 per share. The firm's equity has a book value of \$500 million. The firm has total debt with a book value of \$800 million and a market value of \$750 million. The firm's cost of equity is 10.0%, its pre-tax cost of debt is 6%, and its tax rate is 50%.

a) Calculate the value of this firm based on the discounted value of FCFF.

b) Based on your answer to part (a) and the other information provided, what is your estimate of the stock price per share? Does your analysis lead to a buy recommendation or a sell recommendation on this stock?

9. **Country Risk (12 points):**

You are valuing the equity of a firm from Greece using the Free Cash Flow to Equity (FCFE) method, where the cash flows are denominated in nominal local currency (*Euro*). Long-term Euro-denominated debt issued by the Greek government has a yield of 5.2% and has a BBB+ rating. The comparable yield on long-term Euro-denominated bonds issued by Germany is 3.7% and the comparable yield on U.S. Treasury bonds is 3.4%. The equity Beta for the firm is 1.50.

- a) An intern at your firm has estimated the cost of equity for this firm using the 5.2% yield on the Greek bond as the risk-free rate, along with an equity market risk premium of 4.5% and the equity Beta of 1.50, or:

$$K_e = 5.2\% + 1.50(4.5\%) = 11.95\%$$

What implicit assumptions regarding country risk has this intern built into their cost of equity calculation?

- b) You decide to throw out what the intern has done and start from scratch. Specifically, you decide to estimate the country risk premium for Greece based on the relative volatilities of the U.S. and Greek equity markets. You estimate that the standard deviation of U.S. equity market returns is 20%, while the standard deviation of Greek equity market returns is 30%. Assuming the firm's sensitivity to country risk is equal to its sensitivity to equity market risk, recalculate the cost of equity after incorporating country risk.

10. **Debt Values and the Cost of Capital (22 points)**

Future operating lease commitments for XYZ Corp. are listed below. In addition, the balance sheet for XYZ Corp lists total debt consisting of two long-term bonds. The first bond is a 10% coupon bond with 10 years to maturity. This bond has a book value of \$500 million and a market value of \$600 million. The second bond is a zero-coupon convertible bond with 5 years to maturity. This bond has a face (book) value of \$400 million and a market value of \$369 million. Based on the firm's debt rating, you estimate that the firm's pre-tax cost of debt is 6.0%.

Year	Operating Lease Commitments (\$ millions)
2010	210
2011	195
2012	190
2013	165
2014	140
>2014	110
Total	1,010

- a) Calculate the debt value of operating leases for XYZ Corp. Explain any assumptions you make about future operating lease commitments.
- b) Calculate the market values of the debt and equity components for the convertible bond.
- c) XYZ Corp. has 50 million shares outstanding with a current market price of \$20 per share. The book value of equity is \$400 million, the firm's cost of equity is 12.0%, and the firm pays taxes at a rate of 35%. Use this information along with your answers to parts (a) and (b) to calculate the weighted average cost of capital (WACC) for XYZ Corp.

Consolidated Financial Statements for Borders Group:

Consolidated Income Statement (thousands)		FY 2008	FY 2007
Total revenues		3,275,400	3,820,900
Cost of merchandise sold		2,484,800	2,838,300
Gross margin (loss)		790,600	982,600
Selling, general & administrative expenses		839,600	956,100
Pre-opening expense		2,800	6,800
Other expenses		97,400	0
Operating income (loss)		-149,200	6,600
Interest expense		5,300	42,900
Income (loss) before income tax		-154,500	-36,300
Income tax		30,200	-17,800
Net income (loss)		-184,700	-18,500

Consolidated Balance Sheet (thousands)		FY 2008	FY 2007
Cash & cash equivalents		53,600	61,000
Merchandise inventories		915,200	1,327,200
Accounts receivable & other current assets		102,400	117,800
Total current assets		1,071,200	1,506,000
Buildings		6,300	6,300
Leasehold improvements		585,000	628,000
Furniture & fixtures		1,008,000	1,035,800
Construction in progress		3,200	11,500
Property & equipment, at cost		1,602,500	1,681,600
Less: accumulated depreciation & amortization		1,108,300	1,042,800
Property & equipment, net		494,200	638,800
Other assets		39,400	64,900
Deferred income taxes		4,000	52,500
Goodwill, net		200	40,500
Total assets		1,609,000	2,302,700
Short-term debt		329,800	548,600
Trade accounts payable		350,000	550,300
Accrued payroll & other liabilities		279,800	344,600
Other payable expenses		34,100	24,300
Total current liabilities		993,700	1,467,800
Long-term debt		6,400	5,400
Other long-term liabilities		345,800	350,400
Minority interest		500	2,200
Total liabilities		1,346,400	1,825,800
Common stock		186,900	184,000
Accumulated other comprehensive income (loss)		11,900	42,400
Retained earnings (accumulated deficit)		63,800	250,500
Total stockholders' equity		262,600	476,900
Total liabilities & stockholders' equity		1,609,000	2,302,700