

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI - K. K. BIRLA GOA CAMPUS
Second Semester 2022-23, Comprehensive Examination May, 2023
Business Analysis and Valuation (ECON F355)

(Answer all questions)

Examination Date: 18th May, 2023.

Duration: 3 HOURS

Max Marks: 40

1. In 2000, the Gap reported operating income \$1,445 million on revenues of \$13,673 million. The firm also reported capital expenditures of \$1,859 million and depreciation of \$590 million for the year, and its non-cash working capital increased by \$323 million during the year. The operating lease expenses for the year were \$705.8 million and Table below reports the lease commitments for future years. (Marks 15)

Table: Lease Commitments for future years: The Gap

<i>Year</i>	<i>Commitment</i>
1	\$774.60
2	\$749.30
3	\$696.50
4	\$635.10
5	\$529.70
6 and beyond	\$5,457.90

Pre-tax cost of debt for the firm is based upon its rating of A. The default spread for A rated firm is 1.80%, the risk free rate is 5.4% and marginal tax rate of 35%. Treating the commitment in year 6 and beyond as an annuity of \$682.24 million for 8 years, estimate a debt value for the operating leases.

The Gap's market value of equity at the time of this valuation was \$28,795 million and the debt outstanding on the balance sheet of \$1,809.90 million. Estimate the adjusted debt value, adjusted operating income and adjusted after-tax operating income.

Dividing this value by the book value of debt (including capitalized operating leases) and the book value of equity at the end of the previous year yields an adjusted return on capital of 13.61% in 2000 for the firm. We will assume that the firm will be able to maintain this return on capital in perpetuity.

Cost of equity estimate for the Gap begins by using a bottom-up beta of 1.20 (based upon the betas of specialty retailers) for the high growth period, a riskfree rate of 5.4% and a mature market premium of 4%. In stable growth, we will lower the beta to 1.00, keeping the riskfree rate and risk premium unchanged.

To estimate the cost of capital during the high growth and stable growth phases, we will assume that the pre-tax cost of debt will remain at 7.2% in perpetuity and that the current market debt ratio of 20.58% will remain the debt ratio.

To estimate the expected growth in operating earnings during the high growth period, we will assume that the firm will continue to earn 13.61% as its return on capital and that its reinvestment rate will equal its average reinvestment rate over the last 4 years, 93.53%. To estimate the terminal value at the end of year 5, we assume that this cash flow will grow forever at 5%.

Estimate the Gap's equity value if the firm's cash and marketable securities (estimated to be \$409 million at the end of 2000) and subtracting out the value of the debt yields a value for the equity in the firm. Provide your recommendation if the prevailing market value of equity of \$27,615 million.

2. Dionex Corporation, a leader in the development and manufacture of ion chromatography systems (used to identify contaminants in electronic devices), reported earnings per share of \$2.02 in 1993, and paid no dividends. These earnings are expected to grow 14% a year for five years (1994 to 1998) and 7% a year after that. The firm reported depreciation of \$2 million in 1993 and capital spending of \$4.20 million, and had 7 million shares outstanding. The working capital is expected to remain at 50% of revenues, which were \$106 million in 1993, and are expected to grow 6% a year from 1994 to 1998 and 4% a year after that. The firm is expected to finance 10% of its capital expenditures and working capital needs with debt. Dionex had a beta of 1.20 in 1993, and this beta is expected to drop to 1.10 after 1998. (The treasury bond rate is 7% and market risk premium of 5.5%)

(Marks 10)

- a. Estimate the expected free cash flow to equity from 1994 to 1998, assuming that capital expenditures and depreciation grow at the same rate as earnings.
- b. Estimate the terminal price per share (at the end of 1998). Stable firms in this industry have capital expenditures which are 150% of depreciation, and maintain working capital at 25% of revenues.
- c. Estimate the value per share today, based upon the FCFE model.

3. The following are the betas of the equity of four forestry/paper product companies, and their debt/equity ratios.

(Marks 4)

Company	Beta	Debt/Equity Ratio
Weyerhaeuser	1.15	33.91%
Champion International	1.18	54.14%
International Paper	1.05	45.50%
Kimberly-Clark	0.91	11.29%

(All the firms face a corporate tax rate of 40%)

- A. Estimate the unlevered beta of each firm. What do the unlevered betas tell you about these firms?
- B. Assume now that Kimberly Clark is planning to increase its debt/equity ratio to 30%. What will its new beta be?
- C. If you were valuing an initial public offering in the paper products area, what beta would you use in the valuation? (Assume that the firm going public plans to have a debt/equity ratio of 40%.)
4. Why might discounted cash flow valuation be difficult to do for the following types of firms? (Marks 6)
- A. A private firm, where the owner is planning to sell the firm.
- B. A biotechnology firm, with no current products or sales, but with several promising product patents in the pipeline.
- C. A cyclical firm, during a recession.
- D. A troubled firm, which has made significant losses and is not expected to get out of trouble for a few years.
- E. A firm, which is in the process of restructuring, where it is selling some of its assets and changing its financial mix.
- F. A firm, which owns a lot of valuable land that is currently unutilized.
5. The growth in per share FCFE of CBS, Inc. is expected to be 10%/year for the next two years, followed by a growth rate of 5%/year for three years; after this five-year period, the growth in per share FCFE is expected to be 2%/year, indefinitely. The required rate of return on CBS, Inc. is 12%. Last year's per share FCFE was \$2.00. What should the stock sell for today? (Marks 2.5)
6. Antiquated Products Corporation produces goods that are very mature in their product life cycles. Antiquated Products Corporation is expected to pay a dividend in year 1 of \$1.00, a dividend of \$0.90 in year 2, and a dividend of \$0.85 in year 3. After year 3, dividends are expected to decline at a rate of 2% per year. An appropriate required rate of return for the stock is 8%. The stock should be worth _____. (Marks 2.5)