

Corporate Finance: Final Exam

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

1. Vaudeville Inc. is a small entertainment firm. It has 20 million shares outstanding, trading at \$ 10 a share and \$ 50 million in outstanding debt. The firm's only business is making movies, but it does have \$25 million as a cash balance. The firm has a regression beta based upon two years of stock returns of 1.85. The unlevered beta, cleansed of and corrected for cash holdings, for firms in the movie business is 1.20. The corporate tax rate is 40%.

a. Estimate the bottom-up beta for Vaudeville. (3 points)

b. The firm is considering borrowing \$100 million and using the proceeds, in conjunction with the cash it has on hand, to enter the entertainment software business. The unlevered beta for firms in this business is 2.0. Estimate the beta for the company after the transaction. (3 points)

2. You are reviewing the net present value computation for a 5-year project, which requires an initial investment in fixtures and equipment of \$ 10 million. The analyst has assumed straight-line depreciation down to a salvage value of zero, no working capital or capital maintenance investments over time and constant revenues and earnings over the five years, and arrived at a net present value of -\$1.2 million (negative). The corporate tax rate is 40%.

a. If the cost of capital used by the analyst is 10%, how much after-tax operating income is she assuming that the project will generate each year for the next 5 years. (2 points)

b. Now assume that you find out that the project would be eligible for accelerated depreciation, with depreciation of \$ 4 million in year 1, \$ 3 million in year 2, \$1.5 million in year 3, \$ 1 million in year 4 and \$0.5 million in year 5. If the tax rate for the firm is 40%, estimate the effect on the net present value of moving to this schedule (from the straight line depreciation) (2 points)

c. Assume that the firm that is considering this project earned \$ 40 million in pre-tax operating income last year; it had a book value of capital of \$ 400 million and a market value of \$ 1 billion. Assuming that the cost of capital of 10% applies to the entire firm, estimate the economic value added by this firm last year. (2 points)

3. Novacell Inc. is a manufacturer of solar panels that is considering moving from its existing policy of not borrowing money. The firm has 4 million shares outstanding, trading at \$ 25 a share, no cash holdings and a beta of 1.20. The riskfree rate is 5%, the equity risk premium is 4% and the corporate tax rate is 40%.

a. Estimate the current cost of capital for the firm. (1 point)

b. Assume that the firm can borrow \$ 25 million at a pre-tax rate of 7% and buy back shares.. Assuming that the firm is growing 3% a year in perpetuity and that investors are rational, estimate the change in value per share after the buyback. (2 points)

c. Assume that instead of buying back shares, the firm had borrowed \$25 million and invested the money in expanding its existing business. If the expansion has a net present value of \$ 5 million, estimate the change in value per share after the transaction. (3 points)

4. You have been asked to assess the dividend policy of Doralee Inc, a service company that has been in existence only 3 years. The firm has provided you with its last three years of financial data:

Year	3 years ago	2 years ago	Most recent year
Net Income	\$ 100 million	\$ 120 million	\$ 150 million
Capital Expenditures	\$ 80 million	\$ 110 million	\$ 125 million
Depreciation	\$ 50 million	\$ 60 million	\$ 70 million
Non-cash Working Capital	-\$10 million	\$ 10 million	\$ 20 million
Total Debt	\$ 0	\$ 40 million	\$ 30 million

(Note: You have been given total non-cash working capital each year, not the change)

You are also told that the firm had \$ 20 million in cash, no non-cash working capital and no debt when it started operations three years ago.

a. If the current cash balance is \$ 50 million, the firm bought back no stock and the firm maintained a constant dividend payout ratio over the 3 years, estimate the dividend payout ratio. (3 points)

b. Now assume that the firm expects net income, net capital expenditures and non-cash working capital to grow next year by 20%, while maintaining its dollar debt level and cash balance at last year's levels, estimate how much cash the firm will have available to return to stockholders next year. (3 points)

5. You are trying to value XGames Inc., a company that manufactures games for the XBos and Playstation. You have been provided the following information:

- The firm generated \$ 20 million in after-tax operating income in the most recent year and the corporate tax rate is 40%.
- The capital expenditures incurred in developing new games was \$ 15 million in the most recent year and depreciation was \$ 5 million.
- The non-cash working capital increased by \$ 5 million during the course of the year

a. Assuming that the after-tax operating income, capital expenditures, depreciation and non-cash working capital all are expected to grow 15% a year for the next 3 years, estimate the free cash flows to the firm each year for the three years. (2 points)

b. After year 3, you expect the growth rate to drop to 4% but you anticipate that the return on capital will stay stable at the same level that the firm maintained during the high growth period. If the cost of capital in stable growth is anticipated to be 10%, estimate the terminal value of the firm. (2 points)

c. If the firm has \$ 80 million in debt, \$ 25 million as a cash balance and 10 million shares outstanding, estimate the value per share today. (You can assume that the cost of capital is 12% for the first 3 years) (2 points)