

Corporate Finance: Final Exam

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

1. You have been asked to assess the cost of equity for Converse International, a publicly traded firm that operates in the entertainment and travel businesses. You have collected the following information on the value generated by Converse in each of the businesses and relevant sector information:

<i>Business</i>	<i>Estimated Value</i>	<i>Averages for the Sector</i>	
		<i>Regression beta</i>	<i>Unlevered Beta</i>
Entertainment	\$ 2 billion	1.50	1.20
Travel	\$ 1 billion	2.00	0.80

Transverse has a book value for equity of \$ 1 billion and a book value of debt of \$ 1 billion as well; the latter is also the market value for debt. The effective tax rate is 30% and the marginal tax rate is 40%.

- a. Estimate the unlevered beta for Converse International. (1 point)

- b. Estimate the levered beta for Converse International. (2 points)

c. Assume that Converse plans to borrow \$ 1.5 billion to use for two purposes: \$ 500 million will be used to buy back stock and \$ 1 billion to expand the travel business. Estimate the levered beta after the transaction. (3 points)

2. Jonas Steel is a publicly traded steel company with an ageing steel plant. It currently generates \$ 2 million in annual pre-tax operating income on revenues of \$ 150 million from the plant; the annual depreciation charge is \$ 1 million. With no additional capital investments, the plant can be expected to continue to generate the same operating income and depreciation for the next 5 years and have no salvage value at the end of that period. Jonas Steel is considering scrapping the existing plant for today's book value and upgrading it by investing \$ 15 million today; the amount can be depreciated straight line over the next 10 years. The upgrade will increase the annual pre-tax operating income to \$ 3.5 million and extend the life of the plant to 10 years, with no salvage value at the end. The marginal tax rate is 40% and the cost of capital is 10%.

a. Estimate the initial investment (year 0), net of salvage from the old plant., (1 point)

b. Estimate the incremental annual after-tax cashflows for years 1-5. (2 points)

- c. Considering all relevant cash flows, estimate the NPV of upgrading the plant today.
(3 points)

3. Phoebus Inc., a publicly traded firm, has 150 million shares trading at \$ 10 a share and \$ 500 million in debt (market value and book value). The firm currently has a beta of 1.20 and a pre-tax cost of debt of 5%. The riskfree rate is 4% and the market risk premium is 4.5%. The marginal tax rate is 40%.

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

b. The firm has announced that it will be borrowing \$ 500 million and buying back shares. The rating for the firm will drop to BBB, causing the pre-tax cost of debt to rise to 6%. Estimate the new cost of capital for the firm. (2 points)

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c. Now assume that investors are rational and that the firm is growing 4% a year in perpetuity. How many shares can Phoebus expect to buy back with \$ 500 million?
(2 points)

4. Lestral Stores is an all-equity-funded retailer looking for some guidance on dividend policy. Over the last 3 years, the company has seen its revenues and net income increase and has maintained a dividend payout ratio of 50% of net income:

Year	3 years ago	2 years ago	Most recent year
Revenues	\$ 500	\$ 550	\$ 605
Net Income	\$ 80	\$ 88	\$ 96.8
Depreciation	\$ 40	\$ 44	\$ 48.4

Over the same three year period, Lestral Stores has seen its cash balance decline from \$ 50 million to \$ 20 million.

a. Based on the information provided, estimate how much the firm reinvested in long-term assets and working capital over the 3-year period. (2 points)

b. Assume now that revenues, net income and depreciation are expected to grow 10% a year for the next two years. Working capital is expected to remain 25% of total revenues over the period and capital expenditures will be 200% of depreciation each year. If the firm wants to maintain its dividend payout ratio at 50% and increase its cash balance back to \$ 50 million, how much debt (as a percent of reinvestment) will the firm have to take on for this to be feasible? (4 points)

5. You are reviewing the discounted cash flow valuation of Roland Inc., a publicly traded automobile parts company. The analyst estimated the following numbers for the next 3 years (the high growth period) for the company:

Year	Current	1	2	3
EBIT(1-t)	\$80.00	\$92.00	\$105.80	\$121.67
FCFF	\$20.00	\$23.00	\$26.45	\$30.42

a. Assuming that the firm will maintain its existing return on capital for the next 3 years and that the analyst estimates of free cash flow and earnings are correct, estimate the return on capital for the firm. (2 points)

b. At the end of year 3, the firm will be in stable growth, with a cost of capital of 10% and an expected growth rate of 4% forever. If the return on capital after year 3 will be 12%, estimate the value of the firm at the end of year 3. (2 points)

c. The firm currently has a cost of capital of 12% (higher than its stable period cost of capital), a cash balance of \$ 50 million and debt outstanding of \$ 150 million. If there are 100 million shares outstanding, estimate the value of equity per share today. (2 points)