

Practice Questions - Capital Structure

1. B Ltd. is a company in the airline industry with a debt to equity of 40:60 in order to calculate the cost of equity it has identified a proxy company in the industry, X PLC. X PLC has just paid a dividend of \$1.50 per share and currently trading at \$20. X PLC expects an annual growth in dividends of 3%. Calculate the risk adjusted cost of equity for B Ltd. if risk free rate is 4% and market risk premium is 6%. X PLC has a debt to equity of 20:80 and both companies have a marginal tax rate of 30% and a debt beta of 0.1. **Calculate cost of equity for B Ltd.**
2. Crestlee plc is evaluating two projects. The first involves a £4.725 million expenditure on new machinery to expand the company's existing operations in the textile industry. The second is a diversification into the packaging industry, and will cost £9.275 million. Crestlee's summarised balance sheet, and those of Canall plc and Sealalot plc, two quoted companies in the packaging industry, are shown below:

	<i>Crestlee plc</i>	<i>Canall plc</i>	<i>Sealalot plc</i>
	£m	£m	£m
Non-current assets	96	42	76
Current assets	95	82	65
Less current liabilities	<u>(70)</u>	<u>(72)</u>	<u>(48)</u>
	<u>121</u>	<u>52</u>	<u>93</u>
Financed by:			
Ordinary shares ¹	15	10	30
Reserves	50	27	50
Medium and long-term loans ²	<u>56</u>	<u>15</u>	<u>13</u>
	<u>121</u>	<u>52</u>	<u>93</u>
Ordinary share price (pence)	380	180	230
Debenture price (£)	104	112	–
Equity beta	1.2	1.3	1.2

Notes:

1. Crestlee and Sealalot 50 pence par value, Canall 25 pence par value.
2. Crestlee 12% debentures 1998–2000, Canall 14% debentures 2003, Sealalot medium-term bank loan.

Crestlee proposes to finance the expansion of textile operations with a £4.725 million 11 per cent loan stock issue, and the packaging investment with a £9.275 million rights issue at a discount of 10 per cent on the current market price. Issue costs may be ignored. Crestlee's managers are proposing to use a discount rate of 15 per cent per year to evaluate each of these projects. The risk-free rate of interest is estimated to be 6 per cent per year and the market return 14 per cent per year. Corporate tax is at a rate of 33 per cent per year.

Requirements

Determine whether 15 per cent per year is an appropriate discount rate to use for each of these projects. Explain your answer and state clearly any assumptions that you make.

PGDFS 203 Corporate Valuation

3. CAP plc is a listed company that owns and operates a large number of farms throughout the world. A variety of crops are grown.

The following is an extract from the balance sheet of CAP plc at 30 September 2002.

	<i>£ million</i>
Ordinary shares of £1 each	200
Reserves	100
9% irredeemable £1 preference shares	50
8% loan stock 2003	<u>250</u>
	<u>600</u>

The ordinary shares were quoted at £3 per share ex div on 30 September 2002. The beta of CAP plc's equity shares is 0.8; the annual yield on treasury bills is 5%, and financial markets expect an average annual return of 15% on the market index. The market price per preference share was £0.90 ex div on 30 September 2002. Loan stock interest is paid annually in arrears and is allowable for tax at a corporation tax rate of 30%. The loan stock was priced at £100.57 ex interest per £100 nominal on 30 September 2002. Loan stock is redeemable on 30 September 2003. Assume that taxation is payable at the end of the year in which taxable profits arise.

A new project

Difficult trading conditions in European farming have caused CAP plc to decide to convert a number of its farms in Southern Europe into camping sites with effect from the 2003 holiday season. Providing the necessary facilities for campers will require major investment, and this will be financed by a new issue of loan stock. The returns on the new campsite business are likely to have a very low correlation with those of the existing farming business.

- (a) Using the capital asset pricing model, calculate the required rate of return on equity of CAP plc at 30 September 2002. Ignore any impact from the new campsite project.
 - (b) Calculate the weighted average cost of capital of CAP plc at 30 September 2002 (use your calculation in answer to requirement (a) above for the cost of equity). Ignore any impact from the new campsite project.
4. A project costing \$50 million is expected to generate after tax cash flows of \$10 million a year forever. Risk free rate is 3%, asset beta is 1.5, required return on market is 12%, cost of debt is 8%, annual interest costs related to project are \$2 million and tax rate is 40%. Calculate the adjusted present value of the project.
 5. ABC Ltd has a share price of 350c and 1m shares in issue. It currently has no debt. Current cost of capital is 13%. The directors have decided to replace \$2m of equity with 10% debt. The tax rate is 30%.

Required

- (i) Calculate the new value of the geared firm.
- (ii) Calculate the value of the Equity in the geared firm.

PGDFS 203 Corporate Valuation

6. ABC Co. and CD Co. operate in the same industry and are identical in their ability to generate cash flows. ABC Co. is financed by Equity only of 3m shares with current value of \$1 and has a cost of equity calculated at 15%. CD Co. has the same total capital but within it has irredeemable debt with a market value of \$0.9m and cost of debt of 8%. The tax rate is 33%. **Calculate the Cost of Equity and WACC for CD Co.**
7. Company A intends to undertake a project in an unrelated industry. The following details are relevant:

Item	Company A	Proxy Company
Equity Beta (β_e)	1.1	1.3
Value of Equity	1200	900
Value of Debt	500	450

The risk free rate is 4%. The average return on the market is 12%. The tax rate is 30%. The post tax cost of debt is 8%.

Calculate the risk adjusted WACC to be used in evaluating the project.

8. The chairman of Slack decides that the company should increase the proportion of debt in its capital structure. Currently the company has 10% debt in its capital structure, and an equity beta of 0.8. The debt is considered risk free and yields an expected return of 5%, whereas the stock market expected return is 13%. The market capitalization of the company is currently \$360 million. The chairman of Slack thinks that she can increase the proportion of debt to 60% by paying a one-time special dividend and issuing debt for the amount of this dividend. Then debt would have an expected return of 6%.
- What is the debt beta, the asset beta, and the cost of capital of the company before the refinancing? What is the risk premium on the stock market?
 - What is the total value of the company before the recapitalization? What is the amount of debt issued and the dividend paid?
 - What is the beta of the common stock and debt after the refinancing? What is the required rate of return on the common stock after the refinancing?
 - How has the wealth of each individual shareholder changed? Assume that the debt is privately placed, so shareholders do not buy the debt issued.
 - Using the same assumptions as in 2.d, how has the beta of the portfolio of the holders of common stock changed as a result of the refinancing? How could the shareholders invest in the market portfolio to restore the risk of their portfolio to what it was before the refinancing?