Lancaster University
Management School

AcF302: Corporate Finance

Week 12 Workshop Questions

Question 1:

For each of the following statements, explain whether the statement is true or false:

1. When a firm has a constant debt-to-equity ratio, the firm's cost of capital will not fluctuate when it accepts a new project.

2. The assumption that a firm's debt-to-equity ratio is constant means the firm's debt capacity will remain constant throughout the life of a new project.

3. A target leverage ratio means that the firm adjusts its debt proportionally to the project's value.

4. Firms adjust their leverage to maintain a constant debt-to-equity ratio in terms of book value.

5. When we relax the assumption of a constant debt-to-equity ratio, the equity cost of capital for a project will remain constant as the debt-to-equity ratio changes.

6. When a firm maintains a target leverage ratio, its future interest tax shields should be discounted by the cost of debt to get their present value.

7. As a general rule, the WACC method is the easiest to use when a firm maintains a fixed debt-to-value ratio over the life of the investment.

Question 2:

Kinston Industries is considering investing in a machine that will cost $125,000 and will last for three years. The machine will generate revenues of $120,000 each year and the cost of goods sold will be 50% of sales. At the end of year three the machine will be sold for $15,000. The appropriate cost of capital is 10% and Kinston is in the 21% tax bracket. Assume that Kinston's new machine will be depreciated straight line to a salvage value of $5,000 at the end of year three.

What is the NPV of this project?

Question 3:

United Industries is considering a project that will generate the following free cash flows:

United Industries New Project Free Cash Flows

Year	0	1	2	3
Free Cash Flows	-£250	£75	£150	£100

You are also provided with the following market value balance sheet and information regarding United's cost of capital:

United Industries Market Value Balance Sheet (£ Millions) and Cost of Capital

Assets		Liabilities		Cost of Capital	
Cash	250	Debt	650	Debt	7%
Other Assets	1200	Equity	800	Equity	14%
				Corporate tax rate	35%

Assume that the risk of this new project is similar to the average risk of United's projects and that the firm wants to hold constant its debt-to-equity ratio.

a) Calculate United's weighted average cost of capital.

b) Calculate the NPV for United's new project.

c) What is the debt capacity for United's new project in year 0?

d) What is the value of new equity that United has to issue to finance the project?

e) Do you expect the value of United's existing equity to change?

Question 4:

Superjet is considering the acquisition of another firm in its industry. The acquisition is expected to increase Superjet's free cash flow by $5 million the first year, and this contribution is expected to grow at a rate of 4% per year from then on. Superjet has negotiated a purchase price of $110 million. Superjet's weighted average cost of capital is 7.5%. After the transaction, Superjet will adjust its capital structure to maintain its current debt-to-equity ratio of 2.

a) If the acquisition has similar risk to the rest of Superjet, what is the value of this deal?

b) How much debt must Superjet use to finance the acquisition and still maintain its debt-to-value ratio?

c) What percentage of the acquisition's cost will be financed through equity?

Question 5:

Based on the information in the two tables below, use the APV method to estimate the value of Bluehole Industries in 2005. Assume that the market risk premium is 6%, the risk-free rate is 5%, Bluehole's unlevered beta is 1.2, its debt cost of capital is 6.8%, and its continuation value in 2010 is $243,377,000. The corporate tax rate is 35%.

Forecasted cash flows:

	Year	2005	2006	2007	2008	2009	2010
Free Cash Flow ($000s)							
1	**Net Income**		4,595	5,065	6,107	7,936	8,547
2	Plus: After-Tax Interest Expense		4,420	4,420	4,420	4,420	4,420
3	**Unlevered Net Income**		9,015	9,485	10,527	12,356	12,967
4	Plus: Depreciation		5,450	5,405	5,365	5,328	6,795
5	Less: Increases in NWC		(3,218)	(3,423)	(3,790)	(4,297)	(4,751)
6	Less: Capital Expenditures		(5,000)	(5,000)	(5,000)	(5,000)	(20,000)
7	**Free Cash Flow of Firm**		6,246	6,467	7,102	8,387	(4,989)
8	Plus: Net Borrowing		-	-	-	-	15,000
9	Less: After-Tax Interest Expense		(4,420)	(4,420)	(4,420)	(4,420)	(4,420)
10	**Free Cash Flow to Equity**		1,826	2,047	2,682	3,967	5,591

Fixed debt schedule:

		2005	2006	2007	2008	2009	2010
Debt & Interest Table ($000s)							
1	Outstanding Debt	100,000	100,000	100,000	100,000	100,000	115,000

Question 6:

Mercure Industries has 10 million shares outstanding and a current share price of $40 per share. It also has long-term debt outstanding. This debt is risk free, is four years away from maturity, has annual coupons with a coupon rate of 10%, and has a $100 million face value. The first of the remaining coupon payments will be due in exactly one year. The risk-free interest rate is 6%. Mercure has EBIT of $88 million, which is expected to remain constant each year forever. New capital expenditures

are expected to equal depreciation and equal $13 million per year, while no changes to net working capital are expected in the future. The corporate tax rate is 25%, and Mercure is expected to keep its debt-to-equity ratio constant in the future.

a) Based on the above information, estimate Mercure's WACC.

b) What is Mercure's equity cost of capital?