

## **SESSION 3: Valuing levered and companies, the wacc**

### **Modigliani Miller I**

Q1: You have received the following information regarding a company, the Freshwater Corp, your boss would like you to value. The company is located in Tongoland, the country with no taxes and perfectly efficient markets. Currently the company is not levered all, its EBIT per year has been evaluated at 500.000 \$ and should remain the same perpetually. The cost of equity of the company is worth 12%. In this case what is the value of the company? The boss of the company plans to issue a perpetual debt for which it would have to pay 30.000\$ as interest each year (the borrowing rate of the company is 3%) to buy back shares. What would then be the market value of the company? And of  $r_a$ , the wacc, and  $r_e$ ?

### **Valuing levered Companies in a world with taxes**

Q2: Recent political troubles in Tongoland, due to a dramatic rise in beer prices, have finally convinced the boss of the Freshwater Corp to move to the next door country, Bobland. Due to its reputation, Freshwater Corp may expect to have exactly the same capital structure and revenues as in Tongoland. However it will have to pay corporate tax rates. Its marginal rate has been estimated at 25%. In this case what is the value of the levered company? And of  $r_a$ , the wacc, and  $r_e$ ?

### **Marginal versus Average Tax Rate**

Q3: Thanks to your insights you have now been promoted to run a subsidiary in another country Sloiland. The subsidiary has an EBIT of 250.000\$. The tax structure in Sloiland is a bit more complex than in Bobland. Indeed, the first 100.000\$ are tax exempt, the following 100.000\$ taxed at 20% and any amount above that is taxed at 30%. You wish to issue a perpetual debt worth 75000\$ to benefit from the tax shield. The current CFO is skeptical with an average tax rate he believes the gains will be minimal. In view of the cost of debt (equal to the risk free rate: 4%), he values the tax shield at a meager 10.500\$ and considers this hardly interesting in view of the costs associated with a debt issue. Is he right? What would have been the tax shield if the debt had been reimbursed after two years?

### **Leveraging and deleveraging Betas, Company valuation using the WACC**

Q 4: In 2010, General Electric was considering the acquisition of Wellstream, which had put itself up for sale. Wellstream produces flexible pipelines used in the oil production, to bring oil from the seabed to the production platform. GE also knows Wellstream competitors very well, namely Technip and Prysmian. Although the business is really interesting, it is strongly related to emerging markets and oil

prices. GE considers the risk higher and thus GE's WACC is not appropriate to value this acquisition.

You get following data:

Comparison	$\beta_e$	D/E	Tax rate
GE	1,16	61%	15%
WSM	1,30	15%	25%
Technip	1,35	0%	33%
Prysmian	1,32	15%	30%

Target D/E for Wellstream acquisition: 0.4

Wellstream's expected real asset cash-flows next year: 50 million \$

Growth rate of Wellstream's cash-flows: 1.5% per year

Marginal corporate tax rate: 20%

Discount rate on debt: 2% (riskless rate)

Expected return of the market portfolio: 7%

a) Estimate Wellstream' beta of operating assets from the peers.

You overheard Technip has also another division, so you may have to eliminate it.

b) Compute the WACC for the Wellstream's acquisition.

c) Determine the value of this acquisition with the WACC computed in b), knowing that Wellstream's debt is valued at 50 million \$.

d) Determine the value of Wellstream with GE's WACC.

e) Apply the adjusted present value method to value Wellstream's acquisition

### **APV and wacc**

Q5: You are a consultant who was hired to evaluate a new product line for Markum Enterprises. The upfront investment required to launch the product line is \$10 million. The product will generate free cash flow of \$750,000 the first year, and this free cash flow is expected to grow at a rate of 4% per year. Markum has an equity cost of capital of 11.3%, a debt cost of capital of 5%, and a tax rate of 35%. Markum maintains a debt-equity ratio of 0.40.

- What is the NPV of the new product line (including any tax shields from leverage)?
- How much debt will Markum initially take on as a result of launching this product line?

- c. How much of the product line's value is attributable to the present value of interest tax shields?