**CORPORATE FINANCE**

**Elements 1-5**

**Solutions to activities**

**Solutions to the calculations in your classroom activities are provided here, where available.**

**Element 1 – there are no activity solutions**

**Element 2, activity 4 solution (‘Loan financing’), part 2**

The cumulative present value factor (also known as the annuity factor) for five years at 10 per cent is 3.791.

Annual repayment = 100,000/3.791 = £26,378.26.

**Element 2, activity 5 solution (‘Bond financing’), part 3**

####  P0 = $\left(\frac{10}{(1.12)}\right)+\left(\frac{10}{(1.12)2}\right)+\left(\frac{10}{(1.12)3}\right)+ \left(\frac{(10+100)}{(1.12)4}\right)$ = £93.93.

**Element 3, activity 2 solution (‘Capital asset pricing model’)**

(3.5 – 1.3) 1.15 = 2.53%

**Element 3, activity 5 solution (‘Dividend valuation model and Gordon’s Growth model’)**

$E (R\_{i })$ *=* $ \frac{D\_{1}}{P\_{i }}+g$

 $E (R\_{i })$ *=* $ \frac{35.5}{953}+0.071$

 = 10.83 %

**Element 3, activity 6 solution (‘Weighted average cost of capital’), part 2**

WACC =$\left(\frac{2,000,000}{2,000,000+6,000,000}\right) 0.08\_{} $*+* $\left(\frac{6,000,000}{2,000,000+6,000,000}\right)$$0.12\_{}$

= 0.02 + 0.09

= 11%

**Element 3, activity 9 solution (‘Adjusted present value’)**

If we would like to calculate the unlevered cost of capital, it should be:

$R\_{u} $=0.50\*0.10+0.50\*0.06= 8%

Similarly, if we wanted to estimate the project's value without leverage, it should be:

$V^{L}$ =18/1.08 + 18/(1.08)2 + 18/(1.08)3 + 18/(1.08)4 =59.62 million

**Element 4, activity 4 solution (‘Calculation of payback, accounting rate of return and net present value’)**

1. Payback period

Net cash flow year 0 = (1,100,000)

Net cash flow year 1 = 300,000

Net cash flow year 2 = 650,000

Net cash flow year 3 = 2,300,000. Net cash flows in year 3 arise at 2,300,000/12

= 191,667 per month.

Cash requirement at end of year 2 = 150,000

 = 150,000 / 191,667

 = 0.78

Payback period = 2 years 0.78 months

1. ARR

Average annual profit / Average investment

Profit in year 1 = 300,000 – 50,000

Profit in year 2 = 650,000 – 50,000

Profit in year 3 = 2,300,000-50,000

 = 3,100,000

Average annual profit = 1,033,333

Average investment = [(1,000,000 + 0) / 2] x 100/1

ARR = 206.67%

1. NPV

WACC (and discount rate) = (15 x 0.5) + (11 x 0.5)

 = 13%

Net cash flow year 0 = (1,100,000) x 1.00

Net cash flow year 1 = 300,000 x 0.885

Net cash flow year 2 = 650,000 x 0.783

Net cash flow year 3 = 2,300,000 x 0.693

 = 1,368,350

**Element 5 – there are no activity solutions**