Lecture 4 – Team Activity

ACME Corp Income Statement for period ending 30 June 2011	
Net sales	100
COGS	55
Depreciation	10
EBIT	35
Interest expense	5
Taxable income	30
Taxes	9
Net income	21

ACME Corp Balance Sheet as at 30 June		
	2011	2010
Current assets	100	110
PPE		
Cost	400	420
Accum. depr	30	20
Carrying amount	370	400
Total assets	470	510
Current liabilities	80	100
Non-current L	250	270
Owners Equity	140	140
Total L and OE	470	510

Note: all figures are given in millions of dollars ($m).

Question 1: Using the financial statements above, find the Cash Flow From Assets (CFFA) for 2011.

$$CapEx = NFA_{now} - NFA_{before} + Depreciation$$

$$\Delta NWC = (CA_{now} - CL_{now}) - (CA_{before} - CL_{before})$$

$$CFFA = NI + Depr - CapEx \; - \; \Delta NWC + IntExp$$

Team Name:

Answer:

$$\Delta NWC = (CA_{now} - CL_{now}) - (CA_{before} - CL_{before})$$

$$= (100 - 80) - (110 - 100)$$

$$= 20 - 10$$

$$= 10$$

$$CapEx = NFA_{now} - NFA_{before} + Depreciation$$

$$= 370 - 400 + 10$$

$$= -20$$

$$CFFA = NI + Depr - CapEx - \Delta NWC + IntExp$$

$$= 21 + 10 - -20 - 10 + 5$$

$$= 46$$

Question 2:

Project Data	
Project life	4 yrs
Initial investment in equipment	$4m
Depreciation of equipment per year	$1m
Unit sales per year	2m
Sale price per unit	$8
Variable cost per unit	$3
Fixed costs per year, paid at the end of each year	$0.3m
Tax rate	30%
Discount rate	10%

Notes:

1. The firm's current assets and liabilities are $3m and $2m respectively right now. Due to the project, both will increase by $0.2m per year for the life of the project, and they can be sold at cost at the end of the project.
2. The equipment used in the project can also be used in the firm's other activities which will save $0.1m per year in pre-tax equipment hiring costs. Note: Pre-tax costs are gross figures, they have not been multiplied by $(1 - t_c)$.
3. The new project will reduce some of the firm's other revenue streams since some customers will switch to this project from the existing ones. The effect is expected to have a present value of negative one million dollars (-$1m).
4. This is the second time that this project was considered. Last time, the firm began the project and paid a deposit on the equipment, only to cancel the order and lose the deposit when the previous management decided that the project was actually not a good idea. The deposit that was forfeited was $0.5m.

Formulas:

$NI = (Rev - COGS - Depr - IntExp).(1 - t_c)$, or alternatively

$NI = (Q.(P - VC) - FC - Depr - IntExp).(1 - t_c)$

$$\Delta NWC = (CA_{now} - CL_{now}) - (CA_{before} - CL_{before})$$

$$CFFA = NI + Depr - CapEx \ - \ \Delta NWC + IntExp$$

$$NPV = PV(CFFA)$$

Question 2a: Comment on notes 1-4. Which cash flows need to be included in the NPV analysis of the project?

Answer:

Note 1: The increase in NWC needs to be subtracted from CFFA. But in this case the increase in assets is exactly offset by the increase in liabilities since they are both $0.2m/yr, so there is no net effect, they can be ignored because they cancel each other out.

Note 2: Using the equipment in other activities to cut costs should be included in the project's incremental NPV valuation since that is a real saving which increases firm value.

Note 3: This reduction of value in other business segments, commonly called cannibalisation, needs to be included since it is an incremental effect of the project on the firm. The -$1m is already a present value so it can simply be subtracted from the project's NPV.

Note 4: The loss of the deposit is a sunk cost, it should not be included. It has already happened and it is irreversible. The decision to go ahead with the project now has nothing to do with this sunk cost which occurred in the past.

Question 2b: Should the firm proceed with the project?

Answer: The cost savings from other projects are included in the incremental net income calculation. The $0.1m per year savings are subtracted from fixed costs (FC):

$$NI = (Q.(P - VC) - FC - \text{Depr} - \text{IntExp}).(1 - \text{t}_c)$$

$$= (2m \times (8 - 3) - (0.3m - 0.1m) - 1\text{m} - 0) \times (1 - 0.3)$$

$$= \$6.16\text{m}$$

This net income will be received at the end of each year for the next 4 years. We still need to make some adjustments to get CFFA:

$$CFFA = NI + Depr - CapEx \ - \ \Delta NWC + IntExp$$

Capital expenditure (CapEx) is only incurred at the very beginning which is the 'Initial investment in equipment'. There is no yearly capital expenditure.

The increase in Net Working Capital (ΔNWC) over the life of the project is expected to be zero since the increase in current assets and current liabilities offset one another.

$$CFFA_{\text{t=1,2,...4}} = \ NI + Depr - CapEx \ - \ \Delta NWC + IntExp$$

$$= 6.16\text{m} + 1m \ - \ 0 \ - \ 0 \ + \ 0$$

$$= 7.16m \text{ each year}$$

$$CFFA_{\text{t=0}} = \ NI + Depr - CapEx \ - \ \Delta NWC + IntExp$$

$$= \ -1m \ + \ 0 \ - \ 4m \ - \ 0 \ + \ 0$$

$$= -5m$$

Note that the -$1m for NI is included above due to the cannibalisation of the other projects (see note 3).

$$NPV = PV(CFFA_{\text{t=0}}) + PV\left(CFFA_{\text{t=1,2,...10}}\right)$$

$$= CFFA_{t=0} + CFFA_{t=1,2,\ldots 10} \times \frac{1}{r}\left(1 - \frac{1}{(1+r)^T}\right)$$

$$= -5m + 7.16m \times \frac{1}{0.1}\left(1 - \frac{1}{(1+0.1)^4}\right)$$

$$= -5m + 22.70m$$

$$= \$17.70\text{m}$$

Since the NPV is positive, accept the project.

Question 2c: What will be the increase in the value of the firm when it completes the project? Assuming that the firm has **ten million** shares and is unleveraged (in other words it has no debt), calculate the incremental increase in share price due to the project.

Answer:

$A = L + OE$

$V = D + E$

$V = \$17.70\text{m}$

Since $D = 0$, then:

$V = D + E$

$17.70\text{m} = 0 + \text{E}$

$\text{E} = \$17.70\text{m}$

This is the market capitalisation of the firm's shares. Commonly called 'market cap'.

Share price equals the market cap of equity divided by the number of shares:

$E = P_{\text{share}}.n$

$17.7\text{m} = P_{\text{share}} \times 10m$

$P_{\text{share}} = 17.70\text{m} \div 10m \quad = \$1.77$

This will be the increase in the value of each of the firm's shares.