

a) Ballet plc

Calculation of expected value of fines = $(0.3 \times \$0.5m) + (0.5 \times \$1.4) + (0.2 \times \$2m) = \$1.25m$

$\uparrow$ Probability $\uparrow$ Fine $\uparrow$ Prob $\uparrow$ Fine $\uparrow$ Prob $\uparrow$ Fine

Above what we have done is calculated the average fine based on the probabilities of each fine given us.

Capital allowances

Cost 1,000,000

Year one $\frac{250,000}{750,000} \times 0.33 (33\%) = \$83,000$

Year two $\frac{187,500}{562,500} \times 0.33 (33\%) = \$62,000$

Year three $\frac{140,625}{421,875} \times 0.33 (33\%) = \$47,000$

Year four $421,875 \times 0.33 (33\%) = \$139,218$

The NPV of ~~proceeding~~ the project.

Item

0

1

2

3

4

5

outlay

(1,000,000)

EU grant

250,000

25% of gross expenditure on equipment - payment 1 year later

ABC's fee

(50,000)

20% of EU grant $250,000 \times 0.2 = 50,000$

Increased costs of production of having new machine

$\begin{matrix} \nearrow (315,000) & (331,000) & (347,000) & (365,000) \\ \nearrow \uparrow & \nearrow \uparrow & \nearrow \uparrow & \nearrow \uparrow \\ \$30 \times 10,000 & \times 1.05 & \times 1.05 & \times 1.05 \\ \text{production cost per tonne} & \text{increase in production in Year 0} & \text{increase in production per year 5\%} & \end{matrix}$

Tax savings at 33%.

$0.33 \times$ increased costs

33% of tax saved on additional costs of production

Due to these now coming out of your profit you might have been making

$315,000 \times 0.33 = 104,000$

$331,000 \times 0.33 = 109,230$

$347,000 \times 0.33 = 115,410$

$365,000 \times 0.33 = 120,450$

CA tax savings

83,000

62,000

47,000

139,000

Net cash

(1,000,000)

(32,000)

(165,000)

(141,000)

(111,000)

120,000

Discount factor @ 12%

1

0.893

0.797

0.712

0.636

0.567

PV

(1,000,000)

(29,000)

(131,000)

(136,000)

(71,000)

68

NPV = (1249) ie. \$1.249m

Since the negative NPV exceeds the expected value of fines (\$1.25m) over the same period, it appears that the project is not viable in financial terms (ie.) it is cheaper to risk the fines.