

# BUSN3049 Corporate Finance

## Tutorial 4

1. Consider the following income statement:

Sales	537,200
Costs	346,800
Depreciation	95,400
EBIT	
Taxes (30%)	
Net Income	

Fill in the missing numbers and then calculate the OCF. What is the depreciation tax shield?

**Answer**

Sales	537,200
Costs	346,800
Depreciation	95,400
EBIT	95,000
Taxes (30%)	28,500
Net Income	66,500

The OCF for the company is:

$$\begin{aligned}
 OCF &= EBIT + Depreciation - Taxes \\
 &= 95,000 + 95,400 - 28,500 = 161,900
 \end{aligned}$$

The depreciation tax shield (DTS) is the depreciation times the tax rate, so:

$$\begin{aligned}
 DTS &= Depreciation \times t \\
 &= 0.30(95,400) = 28,620
 \end{aligned}$$

2. A piece of newly purchased industrial equipment costs \$745,000 and is classified as seven-year property under MACRS. Calculate the annual depreciation allowances and end-of-the-year book values for this equipment.

**Answer**

The diminishing value method of depreciation is twice the rate of straight line. A seven-year asset is 14.286% per annum so the DV rate is 28.571%. Remember, to find the amount of depreciation for any year, you multiply the written down value of the asset times the DV percentage for the year. The depreciation schedule for this asset is:

Beginning Year	Beginning BV	Depreciation (%)	Depreciation Allowance	Ending BV
1	745,000.00	28.571	212,853.95	532,146.05
2	532,146.05	28.571	152,039.45	380,106.60
3	380,106.60	28.571	108,600.26	271,506.34
4	271,506.34	28.571	77,572.08	193,934.26
5	193,934.26	28.571	55,408.96	138,525.30
6	138,525.30	28.571	39,578.06	98,947.24
7	98,947.24	28.571	28,270.22	70,677.02

3. Pappy's Potato has come up with a new product, the Potato Pet (freeze-dried). Pappy's paid \$120,000 for a marketing survey to determine the viability of the product. It is felt that Potato Pet will generate sells of \$835,000 per year. The fixed costs associated with this will be \$204,000 per year, and variable costs will amount to 20 percent of sales. The equipment necessary for production of the Potao Pet will cost \$865,000 and will depreciate in a straight-line manner for the four years of the product life. This is the only initial cost for the production. Pappy's has a tax rate of 23 percent and a required return of 13 percent. Calculate the payback period, NPV, and IRR.

**Answer**

First, we need to calculate the cash flows. The marketing study is a sunk cost and should be ignored. The profit for the year each year will be:

Sales of New Product	835,000
Variable Costs	167,000
Fixed Cost	204,000
Depreciation	216,250
EBIT	247,750
Taxes (30%)	56,982.5
Profit for the Year	190,767.5

So, the OCF is:

$$\begin{aligned}
 OCF &= EBIT + Depreciation - Taxes \\
 &= 247,750 + 216,250 - 56,982.5 = 407,017.5
 \end{aligned}$$

The only initial cash flow is the cost of the equipment, so the payback period (PBP) is:

$$PBP = \frac{865,000}{407,017.5} = 2.125$$

years.

The NPV is:

$$PVIFA = \left( \frac{1 - (1 + r)^{-n}}{r} \right) = \left( \frac{1 - (1 + 0.13)^{-4}}{0.13} \right) = 2.974$$

$$NPV = -865,000 + 407,017.5(2.974) = 345,660.40$$

And the IRR is:

$$0 = -865,000 + 407,017.5(PVIFA_{IRR\%,4}) = 31.15\%$$