

EXERCISES -5 (SOLUTIONS)

1. First we calculate the incremental cash flow due to the adoption of the new machine by the firm. This is given as

$$CF = (Rev - VC - Dep)(1 - \tau_c) + Dep = (0 - (-290) - 180)(1 - 0.5) + 180 = 235$$

Next we calculate the NPV,

$$NPV = -900 + 235 \left(\frac{1}{0.1} - \frac{1}{0.1(1 + 0.1)^5} \right) = -9.12$$

So the proposal of the treasurer should be rejected.

2. The solution to this exercise is provided in the following table (see Excel file Chapter 6_Exercises 2 and 3.xls).

	0	1	2	3	4	5	6	7	8
Investment	1200000								
Salvage value									400000
Rent		100000	104000	108160	112486.4	116985.9	121665.3	126531.9	131593.2
Sales		4200000	4410000	4630500	4862025	5105126	5360383	5628402	5909822
Costs		3780000	3969000	4167450	4375823	4594614	4824344	5065562	5318840
Working capital	350000	420000	441000	463050	486202.5	510512.6	536038.3	562840.2	
Depreciation		120000	120000	120000	120000	120000	120000	120000	120000
Book value	1200000	1080000	960000	840000	720000	600000	480000	360000	240000
EBIT		200000	217000	234890	253716.1	273526.8	294373	316308.3	339389
EAT		130000	141050	152678.5	164915.5	177792.4	191342.4	205600.4	220602.8
Change in WC	350000	70000	21000	22050	23152.5	24310.13	25525.63	26801.91	-562840
After-tax salvage value									344000
CF	-1550000	180000	240050	250628.5	261763	273482.3	285816.8	298798.5	1247443
Cost of capital	12%								
NPV	85,795.62 €								

3. The solution to this exercise is provided in the following table (see Excel file Chapter 6_Exercises 2 and 3.xls).

	0	1	2	3	4	5	6	7	8
Capital investment	83.5								
Salvage value									12
Change in W.C.	2.3	2.1	3.2	-0.7	-1.6	-2.1	-0.7	-2.5	0
Depreciation		11.9	11.9	11.9	11.9	11.9	11.9	11.9	
EBIT		-9.6	6.5	41.7	36.4	23.9	7.8	2.5	
EAT		-6.24	4.225	27.105	23.66	15.535	5.07	1.625	
After-tax salvage value									7.8
CF	-85.8	3.56	12.925	39.705	37.16	29.535	17.67	16.025	7.8

Cost of capital	11%
NPV	19.49
