EXERCISES -6 (SOLUTIONS)

1. The solution of this exercise is provided in the following table (see Excel file Chapter 7_Exercises.xls).

Year	BV of Inv.	Depreciation	Average BV	Revenues	Cost	EBIT	EBIT(1-τ)	Pre-tax ROC	After-tax ROC
0	25								
1	22	3	23.5	20.00	10.00	7.00	4.20	29.79%	17.87%
2	19	3	20.5	22.00	11.00	8.00	4.80	39.02%	23.41%
3	16	3	17.5	24.20	12.10	9.10	5.46	52.00%	31.20%
4	13	3	14.5	26.62	13.31	10.31	6.19	71.10%	42.66%
5	10	3	11.5	29.28	14.64	11.64	6.98	101.23%	60.74%
Average								**58.63%**	**35.18%**

Since the return on capital is larger than the cost of capital, the project should be accepted.

2. The solution of this exercise is provided in the following table (see Excel file Chapter 7_Exercises.xls).

Year	BV equity	Depreciation	Average BV	Revenues	Cost	Interest	Net income	ROE
0	15							
1	12	3	13.5	20.00	10.00	1	3.60	26.67%
2	9	3	10.5	22.00	11.00	1	4.20	40.00%
3	6	3	7.5	24.20	12.10	1	4.86	64.80%
4	3	3	4.5	26.62	13.31	1	5.59	124.13%
5	0	3	1.5	29.28	14.64	1	6.38	425.64%
Average								**136.25%**

Since the return on equity is larger than the cost of equity, the project should be accepted.

3. The solution of this exercise is provided in the following table (see Excel file Chapter 7_Exercises.xls).

Year	0	1	2	3	4
Investment	15		2		
Salvage value					7
Working capital	1	1.1	1.2	1.3	
Revenues		10	11	12	13
Cost		4	4.4	4.8	5.2
Depreciation		4	3	2	1
EBIT		2	3.6	5.2	6.8
EBIT(1-τ)		1.2	2.16	3.12	4.08
Change in W.C	1	0.1	0.1	0.1	-1.3

CF	-16	5.1	3.06	5.02	13.38
Cumulated CF	-16	-10.9	-7.84	-2.82	10.56
	NPV	**IRR**			
12%	**3.07 €**	**19%**			

Note that in the previous table the salvage value is calculated as the sum of investment minus the sum of depreciation, i.e., (15+2) – (4+3+2+1) = 7. This is the book value which is assumed to be equal to the market value, thus there is tax payment for this cash inflow.

To estimate the payback period we first calculate the cumulated cash flows. We observe that the payback period is equal to 4 years.

We observe that the NPV is positive, so the project should be accepted. We also observe that the IRR is equal to 19%. This is larger than the cost of capital, so again the project should be accepted.