

CHAPTER 1: CAPITAL BUDGETING

LESSON 2: OTHER INCOME MEASURES AND VALUATION MODELS

Question 1

Correct answer: A

Year	1	2	3	4
EBIT	8,000	8,000	8,000	8,000
EBIT(1-T)	6,400	6,400	6,400	6,400
D	25,000	25,000	25,000	25,000
After-tax salvage proceeds	0	0	0	52,000
CF	31,400	31,400	31,400	83,400

$$CF_1 = \text{€}31,400$$

$$V_0 = \frac{31,400}{1.1127} + \frac{31,400}{1.1127^2} + \frac{31,400}{1.1127^3} + \frac{83,400}{1.1127^4} = \text{€}130,781$$

$$V_1 = \frac{31,400}{1.1127} + \frac{31,400}{1.1127^2} + \frac{83,400}{1.1127^3} = \text{€}114,120$$

$$\text{Economic income (Year 1)} = 31,400 - (130,781 - 114,120) = \text{€}14,739$$

Question 2

Correct answer: B

$$CF_3 = \text{€}31,400$$

$$V_2 = \frac{31,400}{1.1127} + \frac{83,400}{1.1127^2} = \text{€}95,581$$

$$V_3 = \frac{83,400}{1.1127} = \text{€}74,953$$

$$\text{Economic income (Year 3)} = 31,400 - (95,581 - 74,953) = \text{€}10,772$$

$$\text{Economic rate of return (Year 3)} = \frac{10,772}{95,581} = 11.27\%$$

Question 3

Correct answer: B

$$NOPAT_2 = EBIT(1 - Tax\ rate) = 8,000(1 - 0.2) = \text{€}6,400$$

$$\text{\$}WACC = WACC \times Capital = 11.27\% \times 111,000 = \text{€}12,510$$

$$EP = 6,400 - 12,510 = -\text{€}6,110$$

Question 4

Correct answer: B

$$MVA = NPV = \sum_{t=1}^4 \frac{EP_t}{(1 + WACC)^t}$$

Year	1	2	3	4
Capital	136,000	111,000	86,000	61,000
NOPAT*	6,400	6,400	6,400	22,400
\\$WACC	15,327	12,510	9,692	6,875
EP	-8,927	-6,110	-3,292	15,525

*The €16,000 of after-gain from salvage is included in Year 4 NOPAT

$$MVA = \frac{-8,927}{1.1127} + \frac{-6,110}{1.1127^2} + \frac{-3,292}{1.1127^3} + \frac{15,525}{1.1127^4} = -\text{€}5,219$$

Question 5

Correct answer: C

$$RI_t = NI_{t-r_e} B_{t-1}$$

$$RI_4 = 21,261 - 0.13(42,262) = \text{€}15,767$$

Question 6

Correct answer: A

Under the claims valuation approach, debt payments (principal and interest) are discounted using the before-tax cost of debt (7.6%) and equity distributions are discounted using the cost of equity (13%) to produce the total value of the company.