

Aufgabe QR-7.11: Operating Lease vs. Finance Lease

(Operating lease vs. Finanzleasing)

Continue the FÜRSTENAU GmbH example and provide postings for all 5 years. Determine the present value of all expenses. Assume that expenses are relevant at the end of the year. How much is an expense for an operating lease which arrives at the same present value of expenses for the FÜRSTENAU payments.

Lösung (Solution):

Workings

$$(1) \text{ Interest in 20X2} = 10\% \cdot (70,000 - 12,000) = \mathbf{5,800.00 \text{ EUR.}}$$

$$(2) \text{ Interest in 20X3} = 10\% \cdot (70,000 - 12,000 - 13,200) = \mathbf{4,480.00 \text{ EUR.}}$$

$$(3) \text{ Interest in 20X4} = 10\% \cdot (70,000 - 12,000 - 13,200 - 14,520) = \mathbf{3,028.00 \text{ EUR.}}$$

$$(4) \text{ Interest in 20X5} = 10\% \cdot (70,000 - 12,000 - 13,200 - 14,520 - 15,972) = \mathbf{1,430.80 \text{ EUR.}}$$

Furthermore for each month there is an expense for depreciation to be 14,000.00 EUR.

Total of expenses discounted as at the beginning of 20X1 are:

$$PV(\{0; 21,000; 19,800; 18,480; 17,028; 15,430.80\})$$

$$= (0 + 19,090.91 + 16,363.64 + 13,884.30 + 11,630.35 + 9,581.31)$$

$$= \mathbf{70,550.51 \text{ EUR.}}$$

An operating leasing contact with the same present value of expenses is an annuity. The annual payments are $70,550.51 \cdot (0.1 \cdot 1.1^5) / (1.1^5 - 1) = \mathbf{18,611.05 \text{ EUR.}}$

See accounts below to confirm the data:

D	PPE	C
(1)	70.000,00	c/d 70.000,00
b/d	70.000,00	

D	Acc Depr	C
c/d	14.000,00	(4) 14.000,00
		b/d 14.000,00
c/d	28.000,00	(A) 14.000,00
	28.000,00	
		b/d 28.000,00
c/d	42.000,00	(i) 14.000,00
	42.000,00	
		b/d_4 42.000,00
c/d	56.000,00	(I) 14.000,00
	56.000,00	
		b/d_5 56.000,00
c/d	70.000,00	(a) 14.000,00
	70.000,00	
		b/d_6 70.000,00

D	Lease Obl.	C
(2)	12.000,00	(1) 70.000,00
(3)	13.200,00	
c/d	44.800,00	
	70.000,00	
		b/d 70.000,00
(C)	14.520,00	b/d 44.800,00
c/d	30.280,00	
	44.800,00	
		b/d_3 30.280,00
(iii)	15.972,00	
c/d	14.308,00	
	30.280,00	
		b/d_4 14.308,00
(III)	14.308,00	

D	Depr-20X1	C
(4)	14.000,00	c/d 14.000,00
b/d	14.000,00	P&L 14.000,00

D	Int-20X1	C
(2)	7.000,00	c/d 7.000,00
b/d	7.000,00	P&L 7.000,00

D	Short-term Liab	C
c/d	13.200,00	(3) 13.200,00
		b/d 13.200,00
(B)	13.200,00	
c/d	14.520,00	(C) 14.520,00
	27.720,00	
		b/d_3 14.520,00
(ii)	14.520,00	(iii) 15.972,00
c/d	15.972,00	
	30.492,00	
		b/d_4 15.492,00
(II)	15.492,00	(III) 14.308,00
c/d	14.308,00	
	29.800,00	
		b/d_5 14.308,00
(b)	14.308,00	

D	Depr-20X2	C
(A)	14.000,00	c/d 14.000,00
b/d	14.000,00	P&L 14.000,00

D	Int-20X2	C
(B)	5.800,00	c/d 5.800,00
b/d	5.800,00	P&L 5.800,00

D	Depr-20X3	C
(i)	14.000,00	c/d 14.000,00
b/d	14.000,00	P&L 14.000,00

D	Int-20X3	C
(ii)	4.480,00	c/d 4.480,00
b/d	4.480,00	P&L 4.480,00

D	Depr-20X4	C
(I)	14.000,00	c/d 14.000,00
b/d	14.000,00	P&L 14.000,00

D	Int-20X4	C
(II)	3.028,00	c/d 3.028,00
b/d	3.028,00	P&L 3.028,00

D	Depr-20X5	C
(a)	14.000,00	c/d 14.000,00
b/d	14.000,00	P&L 14.000,00

D	Int-20X5	C
(b)	1.430,80	c/d 1.430,80
b/d	1.430,80	P&L 1.430,80

D	Bank	C
c/d	19.000,00	(2) 19.000,00
		b/d 19.000,00
c/d	38.000,00	(B) 19.000,00
	38.000,00	
		b/d_3 38.000,00
c/d	57.000,00	(ii) 19.000,00
	57.000,00	
		b/d_4 57.000,00
c/d	76.000,00	(II) 19.000,00
	76.000,00	
		b/d_5 76.000,00
c/d	91.738,80	(b) 15.738,80
	91.738,80	
		b/d_6 91.738,80

Exhibit 1: Accounts