Exercise 02

A professional services firm intends to project the results of its activity for the 4th quarter of 2024. Let's consider the following assumptions:

- No. of Hours = 900
- Fees Charged / Hour = EUR 100
- Variable Costs / Hour = EUR 70
- Total Fixed Costs = EUR 12,000
- Corporate Tax Rate (IRC) = 21%

Additionally, the firm is considering proposals for two mutually exclusive loans (A) and (B), both: (i) in the amount of EUR 24,000 and (ii) for the period between the following value dates: September 30, 2024, and December 31, 2024.

- Loan (A): interest rate = 6.125% with day count = ACT/360
- Loan (B): interest rate = 6.200% with day count = 30/360

a. Which loan proposal seems to be the best for the firm?

b. If the 900 planned hours are achieved and the most favourable loan is taken:
   1. What will be the firm's operating income for the 4th quarter?
   2. What will be its net income?

c. Which of the following events will reduce net income the most?
   1. 10% decrease in the number of hours
   2. 10% decrease in the value of fees charged per hour
   3. 10% increase in the value of variable costs per hour
   4. 10% increase in the value of fixed costs

d. If the fees charged per hour decline by 10%, what will be the required increase in the number of billed hours for the firm to continue achieving the desired net income?

Solution

a. Wich is the best loan proposal?

Base	Sep.	Oct	Nov.	Dec.	Total	Year
ACT/360	0	31	30	31	92	360
30/360	0	30	30	30	90	360

ACT/360: 92/360 x 6,1% x 24 000 = EUR 374.13
30/360: 90/360 x 6,2% x 24 000 = EUR 372.00

Excel Solution

ACT/360: = YEARFRAC (DATE(2024, 9, 30), DATE(2024, 12, 31), 2) * 6,1% * 24000 → 374,13
30/360: = YEARFRAC (DATE(2024, 9, 30), DATE(2024, 12, 31), 4) * 6,2% * 24000 → 372,00

Loan (B), despite having a higher interest rate, is the most favourable.