

Answer on Question #42113, Economics, Finance

a) Firstly, we should calculate cash flow per year.

$$CF_0 = -24 - 3 = -\$27 \text{ million}$$

$$CF_1 = 65 \cdot (1 - 0.7) \cdot (1 - 0.4) = \$11.7 \text{ million}$$

$$CF_2 = 65 \cdot (1 - 0.7) \cdot (1 - 0.4) = \$11.7 \text{ million}$$

$$CF_3 = 65 \cdot (1 - 0.7) \cdot (1 - 0.4) + 3 + 12 = \$26.7 \text{ million}$$

Net Present Value (NPV)

$$NPV = \sum_{t=1}^T \frac{\text{Cash Flow}_t}{(1+i)^t} - \text{Initial Cash Investment}$$

*t = Cash Flow Period*  
*i = Interest Rate Assumption*

$$NPV = -27 + 11.7/1.11 + 11.7/1.11^2 + 26.7/1.11^3 = \$12.56 \text{ million}$$

APV = Unlevered NPV of Free Cash Flows and assumed Terminal Value + NPV of Interest Tax Shield and assumed Terminal Value

The discount rate used in the first part is the return on assets or return on equity if unlevered. The discount rate used in the second part is the cost of debt financing by period.

EBIT - Taxes on EBIT = **Net Operating Profit After Tax (NOPAT)** + Non cash items in EBIT - Working Capital changes - Capital Expenditures and Other Operating Investments = **Free Cash Flows**