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**Question 1: Equity Valuation and Analysis****(19 points)**

We are now at the beginning of FY2025. Currently, the share price of Orange Inc. stands at USD 85, which is below its shareholders' equity per share of USD 100. Mr. Black, an analyst, believes Orange Inc.'s shares are undervalued in the market and has decided to estimate their theoretical share price.

Mr. Black calculated the equity beta of Orange Inc. and then considering the beta of its competitors he estimated the required rate of return for equity shareholders to be 13%.

Mr. Black also made the following assumptions regarding the company's future financial statements.

- The return on equity (ROE; net income / shareholders' equity at the beginning of FY2025) is 10%, and the dividend payout ratio is 25%.
- ROE will be 12% and the payout ratio will be 30% forever from FY2026 onward.
- Since Orange Inc. does not undertake capital increases by public offering or any other capital transactions, the clean surplus relationship holds.

[Note: Residual income = Net income – Equity charge  
Equity charge = Cost of equity · Shareholders' equity]

- a) Calculate the expected residual income per share of Orange Inc. in FY2025. (2 points)
- b) Calculate the expected residual income per share of Orange Inc. in FY2026. (4 points)
- c) Mr. Black applies the residual income model (RIM) to assess whether Orange Inc.'s share price is undervalued or overvalued by the market.
  - c1) Calculate the theoretical share price of Orange Inc. using the residual income model (RIM). Is the share price of Orange Inc. undervalued or overvalued by the market? (6 points)
  - c2) Compare the theoretical share price of Orange Inc. with its shareholders' equity per share at the beginning of 2025. Explain the difference you have identified between the two values, focussing on the ROE and the cost of equity.  
[Note: If you did not answer question c1), assume that the theoretical share price of Orange Inc. at the beginning of 2025 is USD 75] (3 points)

- d) Mr. Black assumes that the share price of Orange Inc. will be equal to its theoretical share price 1 year later (at the beginning of FY2026). He decides to calculate the one-year rate of return for investing in the company's shares at the current market price of USD 85.
- d1) Calculate the theoretical share price of Orange Inc. 1 year later (at the beginning of FY2026) using the residual income model. (2 points)
- d2) If you purchase a share of Orange Inc. at the current market price of USD 85, receive dividends for FY2025, and sell the share at the theoretical share price 1 year later, what will the one-year rate of investment return be?  
[Note: If you did not answer question b) or d1), assume the dividends per share as USD 2.8 and that the theoretical share price of Orange Inc. at the beginning of 2026 is USD 83.90.] (2 points)