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Corporate Finance IF - Dr Michael Pietrzak
Mock Exam

Exercise 1: NPV + Dynamic Capital Budgeting

An investment is given by the following cash flows:
T0: –70.000 €; T1: + 11.000 €; T2: + 24.200 €; T3: + 13.310 €, T4: + 43.923 €. The market interest rate is given by 6% constantly. Please calculate the Net Present Value NPV and the Internal Rate of Return. Is the investment profitable?

Solution Resume 1:

IRR = 10%, NPV = +7,882 €; investment is profitable

Exercise 2: Capital Increase

The NOW Inc. today has a subscribed capital of 2 Mio. € - each with a nominal value of 5 € - and plans a capital inrease with the ratio of 4 : 1. The new shares are issued with 100 € each and the topic price of the stock is traded at the market with 150 € each. There are no dividends. Please calculate the value of the subscription right. Which is the amount of the total equity capital after the capital increase? What is an operation blanche and how many new shares an investor will subscribe, if he/she owns 150.000 € worth in old existing shares and applies the operation blanche?

Solution Resume 2:

SR = 50/ 5 = 10; new capital = 100.000 x 100 € = 10 Mio. €;
150.000 € = 1.000 x 150 €; so 1.000 SRs
R/4 x 100 = (1,000 – R) x 10
25 R = 10,000 – 10R; R = 10,000/35 = 286 SRs exercised (R)

Exercise 3: Annuity Redemption

An investor takes a credit of 200.000 €, 5 years maturity and an effective interest rate of 6%. The investor wants to pay back the debt by a constant annuity deferred at each year end. What is the annual annuity and the total volume of interest paid?

Solution Resume 3:

Annuity A= 47,480 €; total Interest = 5 x 47,480 – 200,000 = 37,400 €.

Exercise 4: WACC

Please explain the concept of the WACC in detail. A corporate A has 2.000 € equity capital and 6.000 € debt. The targeted equity capital yield is 20% and the interest on debt is assumed with 8%. There are no taxes. Please calculate the WACC. Another company B determines the WACC as a function of the leverage L by
WACC (L) = L^2 + 4L – 32. Please determine the Leverage L that leads to the minimum WACC, What is the WACC at this point?

Solution Resume 4:
WACC = 20% x 0.25 + 8% x 0.75 = 5% + 6% = 11%
WACC`= 2L + 4= 0; L = -2 and not possible; so L = 0 and WACC L(0) = -32%..

Exercise 5: RoI and RoE
A company is in need of capital of 10 Mio. € for investments. Currently the management is deliberating whether to finance the investment with a capital increase completely with new equity or to obtain half equity and half debt financing. Taking out a loan of 5 Mio. € would be possible at an interest rate of 8%. Today, the company has a Balance Sheet Total of 10 Mio. € with a Debt Ratio of 60%. The Return on Investment (RoI) of the company currently amounts to 12% and it is assumed that also after the investment they will be able to maintain this profitability. The Interest Rate for the existing debt is also 8%. Outline the effects of both alternatives on the Return on Equity (RoE). Which alternative would you prefer if you were a shareholder of the company

Solution Resume 5:
Basic situation: 4 Mio. € equity capital and 6 Mio. € debt
RoI = 12%,Interest paid = 0.08 x 6 Mio. € = 480,000 €
Net Profit + Interest = 0.12 x 10 Mio. € = 1.2 Mio. €
Net Profit = 1.2 – 480,000 € = 720,000 €
RoE = 720,000/4 Mio = 18%

Scenario A: 10 Mio. € new equity capital; debt unchanged
equity capital = 14 Mio. € and 6 Mio. € debt
RoI = 12%; Net Profit + Interest = 0.12 x 20 Mio. € = 2.4 Nio.€.
Net Profit = 2.4 Mio. - 480,000 € = 1.92 Mo. €
RoE = 1.92/14 = 13.7%; RoE is lower!

Scenario B: equity capital = 9 Mio.€ and debt = 11 Mio. €
RoI new = 2.4 Mio.€
Net Profit = 2.4 Mio.- 0.08 x 11 Mio. € = 2.4 – 0.88 = 1.52 Mio. €
RoE = 1.52/9 = 16.9%; RoE is lower, but better than in A.