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$$D_{0E} = 1,2$$

$$a) V_0 = \frac{D_0 \cdot (1+g)}{r-g} = \frac{1,2 \cdot (1+0,08)}{0,11-0,08} = 43,2$$

$V_0 > P = 28 \rightarrow$ UNDERVALUED

b) $g_S = 12\% \rightarrow$ 3 YEARS
 $g_N = 8\%$

$$V_0 = \sum_{i=1}^3 \frac{D_0 \cdot (1+g_S)^i}{(1+r)^i} + \frac{D_0 \cdot (1+g_S)^3 \cdot (1+g_N)}{(1+r)^3 (r-g_N)}$$

$$= \sum_{i=1}^3 \frac{1,2 \cdot (1+0,12)^i}{(1+0,11)^i} + \frac{1,2 \cdot (1+0,12)^3 \cdot (1+0,08)}{(1+0,11)^3 \cdot (0,11-0,08)}$$

$$= 3,6652 + 44,3781 = 48,043352$$

$V_0 > P = 28 \rightarrow$ UNDERVALUED

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$g_1 = 20\% \rightarrow$ 5 YEARS
 $g_2 = 7\%$
 $r = 10\%$

$$a) V_0 = \sum_{i=1}^5 \frac{D_0 \cdot (1+g_1)^i}{(1+r)^i} + \frac{D_0 \cdot (1+g_1)^5 \cdot (1+g_2)}{(1+r)^5 (r-g_2)}$$

$$V_0 = \sum_{i=1}^5 \frac{1,91 \cdot (1+0,2)^i}{(1+0,1)^i} + \frac{1,91 \cdot (1+0,2)^5 \cdot (1+0,07)}{(1+0,1)^5 \cdot (0,1-0,07)}$$

$$V_0 = \frac{1,91 \cdot (1+0,2)}{1+0,1} \cdot \frac{\left(\frac{1+0,2}{1+0,1}\right)^5 - 1}{\left(\frac{1+0,2}{1+0,1}\right) - 1} + \frac{1,91 \cdot (1+0,2)^5 \cdot (1+0,07)}{(1+0,1)^5 (0,1 - 0,07)}$$

$$V_0 = 12,4925677 + 105,2540 = 117,7466$$

$$P = 80,250 \rightarrow \text{UNDERVALUED}$$

b) $P/E = \frac{80,250}{4,24} = 18,93$

$$P/E_{JP300} = \frac{417,09}{16,29} = 25,69$$

c) $P/BV = \frac{80,250}{\frac{12.512}{920}} = 5,9007$

$$P/BV = \frac{417}{161,08} = 2,5888$$

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$$V_{Lec} = 2$$

$$g = 8\%$$

$$r = 10\%$$

$$D_1 = 0,9$$

$$B = 1,2$$

$$V_{AOC} = 2$$

$$g = 7\%$$

$$r = 11\%$$

$$D_1 = 1,6$$

$$B = 1,4$$

a) $V_0 = \frac{D_1}{r-g}$

$$V_0 = \frac{0,9}{0,1 - 0,08}$$

$$V_0 = \frac{D_1}{r-g}$$

$$V_0 = \frac{1,6}{0,11 - 0,07}$$

$$V_0 = 40$$

$$r_{CAPM_{LCC}} = r_F + \beta \cdot (r_m - r_F)$$

$$r_{CAPM_{LCC}} = 5\% + 1,2 \cdot (20\% - 5\%)$$

$$r_{CAPM_{LCC}} = 23\%$$

$$r_{CAPM_{AOC}} = 5\% + 1,4 \cdot (20\% - 5\%)$$

$$r_{CAPM_{AOC}} = 26\%$$

c) IMPLIED g

$$\Rightarrow P_0 = 50$$

$$P_0 = 30$$

$$50 = \frac{D_1}{r - g_{IMPLIED}}$$

$$30 = \frac{D_1}{r - g_{IMPLIED}}$$

$$50 = \frac{0,9}{0,1 - g_{IMPLIED}}$$

$$30 = \frac{1,6}{0,11 - g_{IMPLIED}}$$

$$g_{IMPLIED} = 0,082$$

$$g_{IMPLIED} = 0,057$$

UNSUSTAINABLE g

$$g = b \cdot ROE$$

$$b = 1 - \frac{0,9}{4} = 0,745$$

$$ROE = \frac{4}{\frac{300}{10}} = 0,133$$

$$g = 0,745 \cdot 0,133 = 0,103$$

$$b = 1 - \frac{1,6}{3,2} = 0,5$$

$$ROE = \frac{3,2}{\frac{320}{20}} = 0,2$$

$$g = 0,5 \cdot 0,2 = 0,1$$

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$$V_0 = 63$$

$$g_S = 12\% \rightarrow 3 \text{ YEARS}$$

$$g_N = 9\% \rightarrow$$

$$D_0 = 1,72$$

a) $r = 4,5 + 1,15 \cdot (14,5 - 4,5)$
 $r = 16\%$

b)
$$V_0 = \sum_{i=1}^3 \frac{1,72 \cdot (1+0,12)^i}{(1+0,16)^i} + \frac{1,72 \cdot (1+0,12)^3 \cdot (1+0,09)}{(1+0,16)^3 \cdot (0,16-0,09)}$$

$$V_0 = 4,81225 + 24,10665 = 28,918907$$

$P_0 = 30 > V_0 \rightarrow \text{OVERVALUED}$

c) $P_0 = 30 > V_0 = 28,918907$ SELL
 $P_0 = 45 < V_0 = 63$ BUY

ROE

$$\frac{NI}{TA} \times \frac{TA}{EBUIM}$$

$$\frac{NI}{S} \times \frac{S}{TA} \times \frac{TA}{EBUIM}$$

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a)

$$\frac{510}{5.140} \times \frac{5.140}{3.100} \times \frac{3.100}{2.200}$$

b) ROE = 0,1 x 1,66 x 1,409

$$ROE = 0,234$$

c) $g = b \cdot ROE$

$$b = 1 - \frac{0,6}{1,96} = 0,4$$

$$g = 0,4 \cdot 0,234$$

$$g = 0,1624$$

15) $D_0 = 0,286$

$$g_S = 32\% \rightarrow 2 \text{ YEARS}$$

$$g_N = 13\%$$

$$r = 14\%$$

$$V_0 = \sum_{i=1}^2 \frac{D_0 \cdot (1+g_S)^i}{(1+r)^i} + \frac{D_0 \cdot (1+0,32)^2 \cdot (1+0,13)}{(1+0,14)(0,14-0,13)}$$

$$V_0 = 0,7146 + 43,3294 = 44,044$$

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$$P/E_0 = \frac{p \cdot (1+g)}{r-g} = \frac{\frac{24}{80} \cdot (1+0,13)}{0,14-0,13} = 33,9$$

$$P/E_1 = \frac{p}{r-g} = \frac{\frac{24}{80}}{0,14-0,13} = 30$$

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