Université Catholique de Louvain
Finance – LECGE1332

Exercise session: 3

Exercise 1:

Procter and Gamble (PG) paid an annual dividend of 1.61 Euros in 2009. You expect PG to increase its dividends by 7.6% per year for the next 3 years and thereafter by 3.3% per year. If the appropriate equity cost of capital for PG is 8.3% per year, use the dividend-discount model to estimate its value per share at the end of 2009.

Moreover, would you have bought the shares if their price on the market were 50 Euros?

Exercise 2: Exam

Halliford Corporation expects to have earnings this coming year of 3.18 Euros per share. Halliford plans to retain all of its earnings for the next 2 years. For the subsequent 2 years, the firm will retain 52% of its earnings. It will retain 22% of its earnings from that point onward. Each year, retained earnings will be invested in new projects with an expected return of 25.76% per year. Any earnings that are not retained will be paid out as dividends. Assume Halliford's share count remains constant and all earnings growth comes from the investment of retained earnings. If Halliford's equity cost of capital is 10.4%, what price would you estimate for Halliford stock?

Exercise 3:

You are asked to evaluate a company; it is totally financed by equity. A financial analyst sends you the following table and he informs you that the expected return is 10%. This company has 120,000 outstanding shares. In year 0, revenues were 85,000 euros.

YEAR	1	2	3
REVENUES	90,000	100,000	120,000
EARNINGS BEFORE TAXES	20,000	22,500	25,000
EARNINGS AFTER TAXES	13,400	14,850	16,500
CAPEX	8,000	10,000	12,000
DEPRECIATION AND AMORTIZATION	4,000	5,000	6,500

The net working capital is 5% of total revenues.

1. Compute the FCFs for each year.
2. Compute the enterprise value and the value per share of this company. The analyst suggested that the expected growth rate after the third year will be 5% and the company keeps its actual dividend policy (i.e. it distributes 40% of EAT).

Exercise 4:

IDX Technologies is a privately held developer of advanced security systems based in Chicago. As part of your business development strategy, in late 2013 you initiate discussions with IDX's founder about the possibility of acquiring the business at the end of 2013. Estimate the value of IDX per share using a discounted FCF approach and the following data:

- Debt: 38 Million Euros
- Excess cash: 103 million Euros
- Shares outstanding: 50 million
- Expected FCF in 2014: 41 million Euros
- Expected FCF in 2015: 59 million Euros
- Future FCF growth rate beyond 2015: 5%
- Weighted-average cost of capital: 9.4%

Exercise 5:

Suppose that in January 2006 Kenneth Cole Productions (KCP) had sales of 525 million Euros, EBITDA of 55.1 million, excess cash of 99 million, 6.2 million of debt, and 22 million shares outstanding. Use the multiple approach to estimate KCP's value based on the following data from comparable firms

	$\frac{P}{E}$	Price Book	Enterprise Value Sales	Enterprise Value EBITDA
Average	15.01	2.84	1.06	8.49

a) Using the average enterprise value to sales multiple, estimate KCP's share price.

b) Using the average enterprise value to EBITDA multiple in the table above, estimate KCP's share price.

EXERCISE 1: $\quad E(R) = 6,3\%\quad g = 3,3\%$

$$V = \frac{D_1}{1+E(R)} + \frac{D_2}{(1+E(R))^2} \cdots + \frac{\frac{D_t(1+g)}{E(R)-g}}{(1+ER)^t}$$

2009	2010	2011	2012	then
1,61	1,73	1,86	2,01	2,07
	7,6%	7,6%	7,6%	3,3%
8,3%	8,3%	8,3%	8,3%	8,3%

$1,61\,(1+0,076) = 1,73$

$$V = \frac{1,73}{(1+0,083)^1} + \frac{1,86}{(1+0,083)^2} + \frac{2,01}{(1+0,083)^3} + \frac{\frac{2,01\,(1+0,033)}{0,083-0,033}}{(1+0,083)^3}$$

$= \boxed{37,4}\;\nwarrow$

$V <$ market price (50) so we don't buy it because it is overvalued.

EXERCISE 2:

$\qquad\qquad\qquad\qquad 3,18\,(1+0,2576)\qquad\quad 5,03\,(1+0,134)$

	0	1	2	3	4	5	6
EPS		3,18	4	5,03	5,7	6,46	6,83
EPG (what you gain thanks to your EPS)			25,76	25,76	13,4	13,4	5,67
R. rate (what is reinvested)		100%	100%	52%	52%	22%	22%
P. rate		0%	0%	48%	48%	78%	78%

$\nearrow\;6,46\,(1+0,0567)$

$\rightarrow 22.0,2576$

$52.0,2576$

de $25,76\%$ → at the growth rate of $25,76\%$

= 100%

(what is distributed) Dividend 0   0   2,41   2,74   5,04   5,33 = Terminal value

$100 - 52 = 48$
$48.5,03$

$\rightarrow 100 - 22 = 78 \rightarrow 78.6,83$

$$\text{Price of stock} = \frac{2,41}{(1+0,104)^3} + \frac{2,74}{(1+0,104)^4} + \frac{5,04}{(1+0,104)^5} + \frac{\frac{5,33}{(0,104-0,0567)}}{(1+0,104)^5} = \boxed{75,419} = P_0$$
(at year 5)

We compute year 6 because
The future dividend

$$P_5 = \frac{Div_6}{(10,4\% - 5,67\%)}$$

$E(R) = 10\%$

$$NWC \times (Rev_t - Rev_{t-1})$$

$$\underset{EAT}{\underbrace{\rightarrow EBiT - Taxes}} + Dep \& Am - \overbrace{\Delta NWC} - CAPEX$$

1) Compute fcf for each year: $\rightarrow 5\%\ 90\,000 - 5\%\ 85\,000$

  year 1 = 13400 + 4000 - 8000 - 250

  = ==9150==

  year 2 = ==9350==

  year 3 = ==10.000==

2) Compute the enterprise value and value per share

  $g = 5\%$ after 3 years + distribution of 40% of EAT

$$\frac{0,4 \cdot 13400}{(1+0,1)} + \frac{0,4 \cdot 14850}{(1+0,1)^2} + \frac{0,4 \cdot 16500}{(1+0,1)^3} + \frac{\frac{(0,4 \cdot 16500)(1+0,05)}{0,1-0,05}}{(1+0,1)^3}$$

V_E = ==118 872,73 €==

$$V_{p.\,share} = \frac{V_E}{shares} = \frac{118\,872,73}{120\,000} = ==0,99\,€==$$

==What's the value per share using Discounted fcf approach?==

$$TV\,2014 = \frac{fcf_{2015}}{E(R)-g} = \frac{59}{(0,094-0,05)} = 1341$$

$$EV_{2013} = \frac{fcf_{2014} + \cancel{fcf_{2015}}\ TV_{2014}}{1+E(R)} = \frac{41 + 1341}{(1+0,094)} = 1263$$

  OR

$$\rightarrow \frac{41}{(1+0,094)} + \frac{59}{(1+0,094)^2} + \frac{\frac{59(1+0,05)}{0,094-0,05}}{(1+0,094)^2} = 1263$$

Enterprise value = 1263 + excess cash - debts

  = 1263 + 103 - 38

  = 1328

Value per share = $\frac{1328}{50}$ = 26,56

  ↳ stock price

EXERCISE 5:

a) Use <u>enterprise value</u> to estimate the share price:
   <u>sales</u>

$$\frac{\text{Enterprise V}}{\text{sales}} = 1,06 \qquad \rightarrow \quad V_{Ent} = 1,06 \times 525$$
$$\downarrow 525 \text{ million} \qquad\qquad\qquad = 556\ 500\ 000$$

$$V_E = 556\ 500^{\circ} + 99\ 000\ 000 - 6200\ 000$$
$$= 649\ 300\ 000$$

$$\underline{\text{Share price}} = \frac{649\ 300\ 000}{22\ 000\ 000} = \underline{29,51}$$

b) Using $\frac{EV}{EBIT}$ to estimate share price

$$\frac{EV}{EBIT} = 8,49 \qquad \rightarrow \quad E_V = 8,49 \times 55,1 = 467\ 799\ 000$$
$$\downarrow 55,1 \text{ millions}$$

$$E_V = 467\ 799\ 000 + 99\ 000\ 000 - 6200\ 000$$
$$= 560\ 599\ 000$$

$$\underline{\text{Share price}} = \frac{560\ 599\ 000}{22\ 000\ 000} = \underline{25,48}$$