**Financiering formuleblad week 5**

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| *Coupon payment* | $$CPN = \frac{\text{Coupon Rate} \times \text{Face Value}}{\text{Number of Coupon Payments per Year}}$$ |
| *Price of a zero-coupon bond* | $$P = \frac{FV}{(1 + YTM_n)^n}$$ |
| YTM of a coupon bond | $$P = CPN \times \frac{1}{y}\left(1 - \frac{1}{(1+y)^N}\right) + \frac{FV}{(1+y)^N}$$ waarbij de CPN je coupon payment is |
| Dividend discount model | $$P_0 = \left(\frac{Div_1 + P_1}{1 + r_E}\right)$$ |
| Totale verwachte rendementen | $$rE = \frac{Div1 + P1}{P0} - 1 = \frac{Div1}{P0} + \frac{P1-P0}{P0}$$ dividend yield; capital gain rate |
| Prijs van een aandeel die je 2 jaar houdt | $$P_0 = \frac{Div_1}{1 + r_E} + \frac{Div_2 + P_2}{(1 + r_E)^2}$$ |
| Prijs van een aandeel die je N jaar houdt | $$P_0 = \frac{Div_1}{1 + r_E} + \frac{Div_2}{(1 + r_E)^2} + \cdots + \frac{Div_N}{(1 + r_E)^N} + \frac{P_N}{(1 + r_E)^N}$$ |
| Prijs van een aandeel die je altijd houdt | $$P_0 = \frac{Div_1}{1 + r_E} + \frac{Div_2}{(1 + r_E)^2} + \frac{Div_3}{(1 + r_E)^3} + \cdots = \sum_{n=1}^{\infty} \frac{Div_n}{(1 + r_E)^n}$$ |
| Constante dividendgroei | $$P_0 = \frac{Div_1}{r_E - g} \qquad r_E = \frac{Div_1}{P_0} + g$$ |
| Payout policy | **Earnings per share ($EPS_t$)** can be used for:<br>a) Dividends (dividend payout ratio)<br>$$Div_t = \underbrace{\frac{\text{Earnings}_t}{\text{Shares Outstanding}_t}}_{EPS_t} \times \text{Dividend Payout Rate}_t$$<br>b) Retained Earnings (plowback ratio, retention rate)<br>-> Reinvest, get ROI, Future EPS grows<br>$$g = \text{Retention Rate} \times \text{Return on New Investment}$$ |
| Een verandering in de groei van het dividend | $$P_0 = \frac{Div_1}{1 + r_E} + \frac{Div_2}{(1 + r_E)^2} + \cdots + \frac{Div_N}{(1 + r_E)^N} + \frac{1}{(1 + r_E)^N}\left(\frac{Div_{N+1}}{r_E - g}\right)$$ |
| Payout valuation, de waarde van een aandeel | $$PV_0 = \frac{PV(\text{Future Total Dividends and Repurchases})}{\text{Shares Outstanding}_0}$$ |

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| | Total payout = pay out % x total expected earnings<br>Re = equity cost of capital<br>G = growth factor<br>PV(Total payouts) = total payout / (r-g) = value of equity<br>Share price = value of equity / nr of shares |
| Enterprise valuation | $$P_0 = \frac{V_0 + \text{Cash}_0 - \text{Debt}_0}{\text{Shares Outstanding}_0}$$<br>Enterprise value = market value of equity + debt – cash<br>Free cash flows = EBIT x (1-t) + depreciation – CapEx – increase in NWC<br>V0 = PV (Future free cash flows of firm) |
| Discount free cash flow model | $$V_0 = \sum_{t=0}^{\infty} \frac{FCF_t}{(1+r_{WACC})^t}$$<br>$$V_0 = \frac{FCF_1}{1 + r_{\text{wacc}}} + \frac{FCF_2}{(1 + r_{\text{wacc}})^2} + \cdots + \frac{FCF_N}{(1 + r_{\text{wacc}})^N} + \frac{V_N}{(1 + r_{\text{wacc}})^N}$$<br>– Often, the terminal value is estimated by assuming a constant long-run growth rate $g_{FCF}$ for free cash flows beyond year N, so that:<br>$$V_N = \frac{FCF_{N+1}}{r_{\text{wacc}} - g_{FCF}} = \left(\frac{1 + g_{FCF}}{(r_{\text{wacc}} - g_{FCF})}\right) \times FCF_N$$ |