|  |  |
| --- | --- |
| $$APR= r\_{m}\*m$$ | To calculate base-case cash flow and NPV:1. OCF (base)
2. NPV (base)
3. Sensitivity if asked [OCF (new) and NPV (new)]
4. Change in NPV / Change in sales
 |
| $$EAR=(1+\frac{APR}{m})^{m}-1$$ |
| $$FV=PV\*(1+r)^{t}$$ | $$OCF=[\left(P-VC\right)Q-FC]\left(1-T\_{C}\right)+depreciation(T\_{C})$$ |
| $$PV \left(annuity\right)=\frac{C}{r}\*(1-\frac{1}{(1+r)^{t}})$$ | $$OCF=EBIT-Taxes+D\&A$$ |
| $$FV \left(annuity\right)= \frac{C}{r}\*[\left(1+r\right)^{t}-1]$$ | $$NPV=Investment^{'}s market value-initial costs$$$$NPV=PV sum of all future cash flows-initial costs$$ |
| $$Bank bill pricing:PV= \frac{F}{\left(1+\left(r\*\frac{t}{365}\right)\right)}$$ | $$NPV=-initial cost+OCF\_{BASE}\left(\frac{1-\frac{1}{\left(1+r\right)^{t}}}{r}\right)+\frac{NWC}{\left(1+r\right)^{t}}$$\*last bit not always in equation🡪E.g. Base cash flow q’s |
| $$Price per bond\left(PV that bond is worth today\right)=$$$$C\*\left(\frac{1-\frac{1}{\left(1+r\right)^{t}}}{r}\right)+\frac{FV}{(1+r)^{t}}$$ | $$Depreciation=\frac{initial cost-salvage value}{useful lifespan} or\frac{c-s}{n}$$ |
| $$Bond: Coupon payment [C]=\frac{coupon rate\*face value}{\# of payments per year}$$ | $$Income tax=EBIT\*tax rate$$ |
| $$Bond: Interest payment (per year)[C]=coupon rate\*FV$$ | $$Net Income=EBIT+(1-tax rate)$$ |
| $$Fisher Effect:1+R=\left(1+r\right)\*(1+h)$$ | $$EBIT=revenues-costs-depreciation$$ |
| $$DCF: \frac{D\_{1}}{(1+r)^{1}}+\frac{D\_{2}}{(1+r)^{2}}+\frac{D\_{3}}{(1+r)^{3}}+…+ \frac{D\_{t}}{(1+r)^{t}}$$ | $$WACC:\frac{E}{V}\*r\_{e}+\frac{P}{V}\*r\_{p}+\frac{D}{V}\*r\_{d}\*(1-T\_{c})$$$$E= market value of equity, P=market value of preference shares,$$$$ D=market value of debt, V=total market value \left(E+P+D\right)$$ |
| $$Share valuation of constant growth: P\_{0}=\frac{D\_{1}}{r-g}or: \frac{D\_{0}(1+g)}{r-g}$$ | $$r\_{e}:cost of equity\rightarrow dividend growth model=\frac{D\_{1}}{P\_{0}}+g or\frac{D\_{0}(1+g)}{P}$$$$ (D\_{1}=\frac{D\_{0}}{g})$$$$OR CAPM\rightarrow r\_{f}+\left(r\_{m}-r\_{f}\right)\*β $$ |
| $$Share price discounted: P\_{0}= \frac{P\_{x}}{(1+r)^{t}}$$ | $$r\_{p}:cost of preference shares\rightarrow \frac{D}{P\_{0}}$$$$r\_{d}:cost of debt\rightarrow yield to maurity or discount rate$$ |
| $PE ratio=\frac{Price per share}{Earnings per share}$ $Price sales ratio=\frac{price}{\left(\frac{sales}{share}\right)}$ |  |
| $$Average Accounting Return=\frac{Average Net Income}{Average Book Income}$$ | $$CAPM:E\left(R\_{i}\right)=\left[E\left(R\_{m}\right)-R\_{f}\right]\*β\_{i}$$ |
| $$Average book income=\frac{cost+ending book value}{2}$$ | $$Arithmetic returns: E\left(r\right)=\frac{r\_{1}+r\_{2}+r\_{n}}{n}$$ |
| $$Prof Index=\frac{PV (future cash flows)}{initial costs } or\frac{NPV+initial cost}{initial cost}$$ | $$Geometric returns: E\left(r\right)= [(1+r\_{1})\*\left(1+r\_{1}\right)\*\left(1+r\_{n}\right)]^{\frac{1}{n}}-1$$ |
| $$Total \left(dollar\right) return=dividend+capital gains$$$$Total \left(percentage\right)return=\frac{dollar return}{initial share price/cost} $$$$Dividend yield=\frac{dividend}{initial share price}$$$$Capital gain yield=\frac{capital gain}{inital share price}$$$$Percentage total of returns=dividend yield+capital gains yield$$ | $$Expected return on portfolio: E\left(R\_{p}\right)=R\_{f}+β\_{p}\*\left[E\left(R\_{m}-R\_{f}\right)\right]$$$$1. Find portfolio value for each \left(share price\*no of shares\right)$$$$2. Weight of each \left(portfolio value ÷total value\right)$$$$3. β\_{p}\rightarrow weight of comany\*β \left(plus all together\right)$$$4. Sub everything into formula (incl. risk free rate and return on market)$  |
| $$Projected cash flows=OCF- ∆NWC-CapExpend$$ | $$Relevant cash flows\rightarrow incremental \left(do not include financing and sunk costs\right)$$ |

1. Calculate operating cash flow (When not VC and FC etc.)

|  |  |
| --- | --- |
| Net Revenue |  $ 170 000 |
| Dep | -$ 112 000 |
| EBIT |  $ 58 000 |
| Tax @ 30% | -$ 17 400 |
| Net Income |  $ 40 600 |
| Add Back Dep |  $ 112 000 |
| OCF |  $ 152 600 |
|  |  |

1. Determine project cash flows for project / draw timeline version

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Yr 0 | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 |
| OCF |  | 152 600 | 152 600 | 152 600 | 152 600 | 152 600 |
| Cap Ex | -560 000 |  |  |  |  |  |
| ΔNWC | - 17 500 |  |  |  |  |  17 500 |
| Resale  |  |  |  |  |  |  50 000 |
| Tc on gain |  |  |  |  |  | - 15 000 |
| FCF | -577 500 | 152 600 | 152 600 | 152 600 | 152 600 | 205 100 |