

## Corporate Finance

**Net Present Value (NPV)** is sum of present value of future cash flows minus initial outlay.

**Internal Rate of Return (IRR)** is the rate, which makes sum of all after tax present values to initial outlay.

**Pay Back Period:** Number of years to recover initial outlay. Ignores terminal value and time value.

**Discounted Payback Period:** Uses discounted cash flows. Number of years it take to recover initial outlay using present value of future cash flows.

**Average Accounting Rate of return (AAR) :** It is the ratio of Average net income over Average Book Value.

**Profitability Index (PI):** Ratio of Present value of future cash flows to Initial outlay. Also known as 1 plus ratio of NPV over Initial Outlay. Greater than one means Accept the project.

**Cost of capital:**

**Weighted Average Cost of Capital (WACC):**  $W_d * K_d (1-t) + W_e * K_e + W_p * K_p$

Debt Portion (Net of tax) + Equity Portion + Preferred Stock Portion

For Bonds, Use YTM not the Coupon rate.

Cost of Preferred Stock =  $D_p / P$  (Preferred Dividend over Stock Price)

Cost of equity:

CAPM model  $K_e = R_f + \beta(Er(m) - R_f)$

Dividend Discount Model:

$P = D_1 / (K - g)$

$K_e = [ D_1 / P ] + g$  ;  $D_1$  = Next year dividend,  $P$  = Stock price (now);  $g$  is growth rate.

$g = ROE (1 - \text{Retention rate})$  ; retention rate also called as Plowback rate.

Risk premium Model

$K_e = \text{Bond Yield Risk Premium.}$

CAPM model with Country specific risk

$K_e = R_f + \beta(Er(m) - R_f + CPR)$

CPR Country Risk Premium = Yield Spread \*  $\left( \frac{\sigma_{Market}}{\sigma_{Bonds}} \right)$

## ROE (DuPont) Formula:

Return on Investments (ROE) = Profit Margin \* Asset Turn Over \* Financial Leverage

$$= \frac{NetIncome}{Sales} * \frac{Sales}{Assets} * \frac{Assets}{Equity}$$

$$Extended DuPont ROE = \frac{NetIncome}{EBT} * \frac{EBT}{EBIT} * \frac{EBIT}{Sales} * \frac{Sales}{Assets} * \frac{Assets}{Equity}$$

ROE = Tax Burden (known as 1-Tax rate) \* Interest Burden \* Asset Turn Over \* Leverage

Sustainable Growth Rate (g) = ROE \* Plough back rate (Retention Rate)

$$ROE = \frac{EBIT}{Sales} * \frac{Sales}{Assets} * \left[1 - \frac{Interest}{Assets}\right] * (1 - T) * Leverage$$

$$ROE = \frac{EBIT}{Revenue} * \frac{EBT}{EBIT} * \left[1 - \frac{Taxes}{EBT}\right] * \frac{Revenue}{Assets} * \frac{Assets}{Equity}$$

= Operating Margin \* Non Operating Margin \* Tax Margin \* Asset Turnover \* Leverage

## Working Capital Management:

$$Current Ratio = \frac{CurrentAssets}{CurrentLiabilities}$$

$$Quick ratio = (Current Assets - Inventory) / (Current Liabilities)$$

$$= (Cash + Cash Equivalents + AR) / Current Liabilities$$

$$Cash Ratio = (Cash + Cash Equivalents) / Current Liabilities$$

Turnover Ratios: Look at ratio document

$$Bank Discount Yield = \frac{(Face Value - Market Price)}{Face Value} * \frac{360}{Number of days}$$

$$= Discount * (360 / t)$$

$$\begin{aligned} \text{Money Market Yield} &= \frac{(\text{Face Value} - \text{Market Price})}{\text{Market Price}} * \frac{360}{\text{Number of days}} \\ &= \text{Holding Period Return HPR} * (360 / t) \end{aligned}$$

- Denominator is Price, No face value

$$\text{Bond Equivalent Yield} = \text{Holding Period Return HPR} * (365 / t)$$

- Only difference between Money market Yield (360) and Bond equivalent Yield (365) is number of days