Based on Fundamentals of Corporate Finance 2nd edition **FIN 300 TIP SHEET Ch.6-11** **Compiled by TRSM Academic Peer Helper, Wiktoria G.**

Bonds

CPN = $\frac{Coupon\ rate\ x\ Face\ value}{\#\ of\ CPN\ pmts./year}$

Use calculator to figure out Price/YTM/Face value

Calc:

N = # of periods, not years (yrs x cpm frequency)
I% = YTM (NOT CPN rate)
PV = price of a bond
PMT = CPN (use formula for the coupon)
FV = Face value
**enter PMT and FV as +, but PV as – (inflows/outflows)

- Treasury Bonds/ Government bonds are risk free
- Any other bonds have some risk that must be compensated
- ✓ CPN%>YTM or PV > FV = Premium
- ✓ CPN%=YTM or PV = FV = Par
- ✓ CPN%<YTM or PV< FV = Discount
- When interest rates rise, bond prices fall (vice versa)
- Long term bonds and bonds with lower coupons are more sensitive to interest rates
- Credit spread: YTM of a bond – YTM of treasury Bond

NPV/investment decisions

- Three decision rules: (always decide based on NPV)
  NPV > 0, accept
  IRR > r or i%
  PBC < specified period
  Insert given cash flows onto the list in calc. compute NPV (input I%), or find IRR/PBCK
- IRR = cost of capital at which NPV is 0
- If projects have different lives, compute NPV of each one and then use that NPV as FV, input N and I% and solve for payment; compare individual payments
- Profitability index = $\frac{Value\ created/NPV}{Resource\ Cosnumed}$

Risk and Return

-Realized return of investing in a stock is the same as in chapter 7 **rE** = $\frac{Div1+P1}{P0}$ -1 = $\frac{Div\ 1}{p0}$ + $\frac{P1-P0}{P0}$

-Average Annual Return and Variance(can also use calc)

$$\bar{R} = \frac{1}{T}(R_1 + R_2 + ... + R_T) \qquad (Eq.10.3)$$

$$Var(R) = \frac{1}{T-1}\left((R_1 - \bar{R})^2 + (R_2 - \bar{R})^2 + ... + (R_T - \bar{R})^2\right) \qquad (Eq.10.4)$$

$$SD(R) = \sqrt{Var(R)} \qquad (Eq.10.5)$$

- Individual investment realized return

$$1 + R_{annual} = (1+R_1)(1+R_2)(1+R_3)(1+R_4) \qquad (Eq.10.2)$$

- 95% confidence interval

Average ± (2 × standard deviation)

$$\bar{R} \pm (2 \times SD(R)) \qquad (Eq.10.6)$$

- Can only diversify unsystematic risk! Not systematic bc it is the cost of investing in the market.
- No clear relationship between volatility (St. D) and return for individual stock

Stocks

rE = $\frac{Div1+P1}{P0}$ -1 = $\frac{Div\ 1}{p0}$ + $\frac{P1-P0}{P0}$ (Div. yield + capital gain rate)

Dividend discount model – discount divs using rE to get the PV

$P_0 = \frac{Div1}{(1+rE)} + \frac{Div2}{(1+rE)^2} + ... + \frac{Div_n}{(1+rE)^n} + \frac{P_n}{(1+rE)^n}$

**Use Cash Flow function on Calc.

Use Perp. Formula for continuing stable growth divs

P_0 = $\frac{Div1}{rE-g}$ (only brings it back 1 year!)

- Change in earnings = New inv x Return on New Inv(earnings x Retention rate)
- Growth (g) = Retention R. x Return on new investment
- Repurchases Model: **P_0** = $\frac{Pv(total\ div+repurchases)}{Shares\ Outstanding\ at\ yr\ 0}$

- Enterprise Value = Market value of equity + debt – cash
- FCF = EBIT (1-Tc) + Depr – CapEx – Inc. In NWC
- V_0= PV of all Future Free cash Flows

$V_0 = \frac{FCF1}{(1+rwacc)} + \frac{FCF2}{(1+rwacc)^2} + ... + \frac{FCF_n}{(1+rwacc)^n}$

- $P_0 = \frac{V0 + Cash0 - Debt0}{Shares\ outstanding\ 0}$

**the different cash flows or dividends can be entered into the Cash function to calculate PV

Capital Budgeting (ONLY INCREMENTAL AMOUNTS)

- Unlevered NI = (INC. REV – INC. COSTS – CCA) X (1 – Tc)
- FCF = Unlevered NI + CCA – CapEx – Increase in NWC
- NWC = Cash + Inv + rec – Payables (current assets – current liab)
- After-tax CF from asset sale = sale price – (tax rate x cap gain)
- CCA deductions for FCF:

Yr	UCC	CCA
1	1/2 CapEx (half yr rule)	UCC1 x CCA rate
2	CapEx – CCA ded. From yr 1	UCC2 x CCA rate
3	UCC yr 2 – CCA ded yr 2	UCC3 x CCA rate

To find NPV

1. Find NPV of FCF **(EXCLUDING CCA)**
2. Find PV of CCA tax shields

= $\frac{CapEx\ x\ CCA\ rate\ x\ Tc}{(r+CCA\ rate)}$ x $\frac{1+\frac{r}{2}}{1+r}$

- $\frac{Min\ sale\ price\ x\ CCA\ rate\ x\ Tc}{(r+CCA\ rate)}$ x $\frac{1}{(1+r)^t}$ (only if u sell)

Systematic risk and the Equity Risk premium

Weight of inv: $w_i = \frac{\text{Value of investment } i}{\text{Total value of portfolio}}$

Return of a portfolio $R_P = w_1R_1 + w_2R_2 + \cdots + w_nR_n$

Expected return $E[R_P] = w_1E[R_1] + w_2E[R_2] + ... + w_nE[R_n]$

Correlation of a stock $Corr(R_i, R_j) = \frac{Cov(R_i, R_j)}{SD(R_i)\,SD(R_j)}$

Variance of a portfolio:

$$Var(R_P) = \overbrace{w_1^2 SD(R_1)^2}^{\text{Accounting for the risk of stock 1}} + \overbrace{w_2^2 SD(R_2)^2}^{\text{Accounting for the risk of stock 2}} + \overbrace{2w_1w_2 Corr(R_1,R_2) SD(R_1) SD(R_2)}^{\text{Adjustment for how much the two stocks move together}}$$

Market capitalization = #of shares outstanding x P/Share

Beta of the market = 1, Beta of the treasury bills or cash =0

$$E[R_i] = r_f + \underbrace{\beta_i \left(E[R_{Mkt}] - r_f\right)}_{\text{Risk Premium for Security } i}$$

Market Risk premium = return of the market – risk free rate