Risk, Return, and Capital Budgeting

What should be the appropriate Required Rate of Return (RROR) for discounting CFs of CB Projects?
Cost of Equity Capital

Use CAPM: \( \bar{R}_S = R_F + \beta_S ( \bar{R}_M - R_F ) \)

- Assume 100% equity financed firm
- also assume Project\text{risk} = Firm\text{risk}

Review: \( \beta_i = \text{Cov} (R_i , R_m)/\sigma_m^2 \)

Beta: A function of riskiness of CFs
- Variability of CFs that is RELATED to the market
Determinants of Beta

2 components of the variability of CFs:

◆ Business Risk:
  • variability in CFs stemming from sales fluctuations (as economy ↑ ↓)
  • *Operating Leverage* (from ↑ fixed costs) magnifies business risk.

◆ Financial Risk (Financial Leverage):
  □ ↑ if the firm/project has ↑ debt. WHY??
  • Debt exacerbates CF variability
    ♦ Because Interest is a fixed cost
Weighted Average Cost of Capital (WACC)

If $\text{Project}_{\text{risk}} \neq \text{Firm}_{\text{risk}}$?

- Use the beta of the project

RROR = weighted average cost of equity and debt

Cost of Equity: \[ \text{CAPM} \]

Cost of Debt: \[ r_B \times (1-T_C) \]

- $r_B$ is the firm’s borrowing rate
WACC-- Continued

★ Debt = $ B;  Equity = $ S;
★ Thus:       Assets = B + S
★ Wt. of debt = B/(S+B)  Wt. of equity = S/(S+B)
★ WACC = S/(S+B) * r_S + B/(S+B) * r_B * (1-T_C)
Real-World Betas

Problems with Beta Estimation:
- Betas may vary over time
- Betas are influenced by changing financial leverage and business risk.

Solutions:
- Adjust for changes in financial/business risk
- Look at average beta estimates of several comparable firms in the industry

H.W. 1, 3, 9, 12, 15