2022

ECO 2200: Module 8

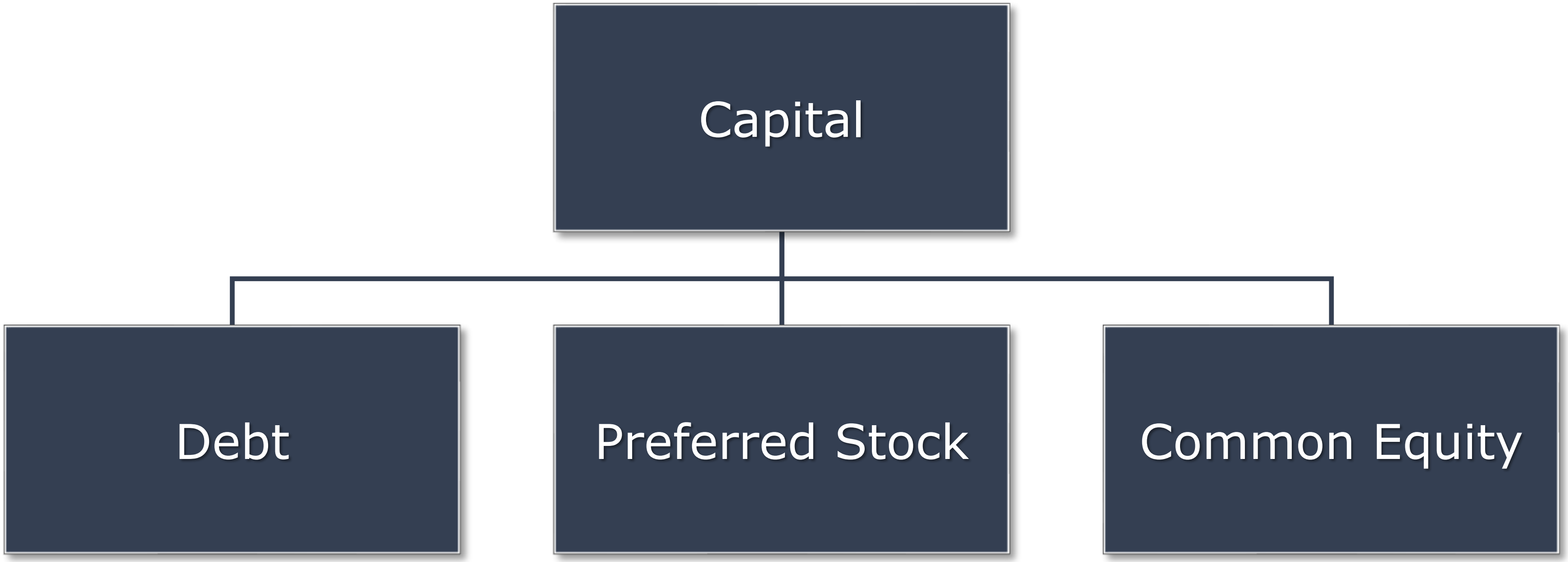
Dorina Tila
CUNY Kingsborough Community College

Cost of Capital

Module 8: Outline

- Sources of Capital
- Component of Costs
- Weighted Average Cost of Capital (WACC)

How can a firm raise capital?



Company must decide how to raise new capital (issue debt or equity?)

Weighted Average Cost of Capital (WACC)

$$WACC = w_d r_d (1 - T) + w_p r_p + w_c r_s$$

- w: weights related to firm's capital structure
- r: cost of each capital component
- t: tax rate
- (1-t) effective cost (since there is savings from tax deductibility. For example, \$10 cost is actually \$8 of tax rate is 20%, because \$2 are tax deductible.

WACC – Cost of Preferred Stock

$$WACC = w_d r_d (1 - T) + w_p r_p + w_c r_s$$

- r_p is the marginal cost of preferred stock, which is the return investors require on a firm's preferred stock.

- Preferred dividends are not tax-deductible, so no tax adjustments necessary. Just use nominal r_p.

WACC – Cost of Preferred Stock

- The cost of preferred stock can be solved by using this formula:

$$r_p = D_p/P_p$$

$$= \$10/\$111.10$$

$$= 9\%$$

WACC – Cost of Common Stock

$$WACC = w_d r_d(1 - T) + w_p r_p + w_c r_s$$

- r_s is the marginal cost of common equity using retained earnings.

- The rate of return investors require on the firm's common equity using new equity is r_e.

WACC – Cost of Common Stock

- Earnings can be reinvested or paid out as dividends.
- Investors could buy other securities, earn a return.
- If earnings are retained, there is an opportunity cost (the return that stockholders could earn on alternative investments of equal risk).
  - Investors could buy similar stocks and earn r_s.
  - Firm could repurchase its own stock and earn r_s.

Example - WACC

$$\begin{aligned} WACC &= w_d r_d(1 - T) + w_p r_p + w_c r_s \\ &= 0.3(10\%)(0.75) + 0.1(9\%) + 0.6(14\%) \\ &= 2.3\% + 0.9\% + 8.4\% \\ &= 11.6\% \end{aligned}$$

Assume floating costs are zero.

- Different projects have different risks.
- The project's WACC should be adjusted to reflect the project's risk.

Factors that a firm can control

<u>Factors the firm cannot control</u>:

- Market conditions such as interest rates and tax rates.

<u>Factors the firm can control</u>:

- Firm's capital structure.
- Firm's dividend policy.
- The firm's investment policy. Firms with riskier projects generally have a higher WACC.