COST OF CAPITAL

Key Concepts

Cost of capital (it is a %, not a dollar amount) is the minimum rate of return that a company must earn on a new investment project. It is also called the hurdle rate, the discount rate, and weighted average cost of capital (WACC)

- It is the hurdle rate because the investment's rate of return must clear this hurdle to be acceptable.
- It is called the discount rate because future cash flows of the investment projects are discounted at this rate.
- It is the WACC, because it is the weighted average of cost of stocks and bonds issued by the company. The weights are based on the way the firm is financed (e.g., 40% debt and 60% equity).
- Each source of capital (e.g., stocks or bonds) has its own risk and return profile and therefore its own rate of return required by investors to provide funds to the firm.
- In order to determine a firm's WACC we need to know how to calculate the relative weights and costs of the debt, preferred stock, and common stock of a firm.

Cost of debt or bonds: The *cost of debt* is the rate that firms have to pay when they borrow money from banks, finance companies, and bond investors.

- Bond's cost is its yield to maturity (YTM).
- Cost of debt or bond needs to be adjusted for tax savings.
  - After-tax cost of debt = *YTM**(1-*Tax rate*)
- Floatation expenses (i.e., fees paid to investment bankers) need to be subtracted from the price of bond when computing the cost.
- Computing cost of bond: Compute the I/Y or rate of return on the financial calculator.

Cost of Preferred Stock: Since preferred stock holders receive a constant dividend with no maturity point, its cost can be estimated by dividing the annual dividend by the net proceeds (after floatation cost) per share of preferred stock

- Cost of preferred stock = Dividends/Net Price

Cost of Common Stock: The cost of equity is the rate of return that investors are demanding or expecting to make on money invested in a company's common stock.

- This includes cost of retained earnings (money reinvested in the business) because stockholders should get a return on reinvested money. The company needs to pay the stockholders for using the retained earnings.
- The cost of equity can be estimated by using
  - A dividend growth model, and/or
  - A risk based model such a Capital Asset Pricing Model (CAPM)
- *Dividend Growth Model:* Cost of common stock = D1/Stock Price + growth rate
- *CAPM:* Cost of common stock = Rf + (Rm – Rf)*Beta of the stock, where beta measures stock's risk

Weighted Average Cost of Capital - Example

Below is an example of computing WACC. All numbers below are hypothetical. Assume 30% tax rate for the firm.

Capital Source	Weight	Cost%
Debt	.38	7.6%*(1 - 0.30) =5.32%
Preferred Stock	.14	10.53%
Common Stock	.48	11.36%

- Multiply weights times the cost of source of capital, then add the products.
- WACC = 0.38*5.32% + 0.14*10.53% + 0.48*11.36%
- = 2.02% + 1.47% + 5.45% = 8.94%

Questions

1. **From what sources can a company raise capital? Do these different sources of capital all charge the same rate? Why or why not?**

   A company can borrow from owners, preferred stockholders, banks, non-bank lenders, suppliers, and the company itself. They all have different lending rates. These lenders all charge different rates because they all have different risk exposures and different supply and demand schedules for their lending funds.

2. **Why is the yield to maturity on a bond the appropriate cost of debt financing?**

   The yield-to-maturity is the cost of the bond and implies the return the investor is demanding based on his or her willingness to buy the bond at the current price. It is also the price of the loan from the borrower's perspective.

3. **What are the two different ways to estimate the cost of equity for a firm?**

   The two ways to estimate the cost of equity are the dividend model and the security market line. If you have sufficient information you can use the average of the two models or pick the one that seems most appropriate. Usually the most appropriate model is the security market line because it can handle the potential other investment opportunities of the lender. Lender's pick across a wide variety of stocks and the security market line determines the appropriate rate for the level of risk of the investment.

4. **Should retained earnings reinvested in the company have a zero cost of capital because it generates the funds internally and the company does not need to pay itself for borrowing money? If not, why?**

   These funds should not have a zero cost. The funds have an opportunity cost (the shareholders could be paid this money via dividends instead of reinvesting in the company). Therefore there is a cost associated with using these funds and thus a zero cost of capital is inappropriate.

5. **When calculating the cost of capital, why is it that the company only adjusts the cost of debt for taxes?**

   Interest expense for debt loans is a deductible expense of the firm and is part of the income statement used for determining the taxable income of a company. Payment of dividends to owners is not a business expense but considered a return of permanent capital to investors. Thus it does not appear on the income statement. So only debt has a tax impact and thus only debt is adjusted for taxes in the cost of capital.

6. **What are the two ways to estimate the percentage (weights) of funds that a company has received from lenders and owners? Which is more appropriate?**

   The two methods are book value and market value for estimating the components (weights) of the cost of capital. The preferred choice is market value.