Chapter 10 Notes

Finding Weighted Average Cost of Captial

Assets and Claims Against Assets at Book Value on 12/31/18					Investor-Supplied Capital: Payables and Accruals Are Excluded Because They Come from Operations, Not from Investors					
	Assets		Claims		Book Value (1)		Market Value (2)		Target (3)	
Cash	$ 10	Accounts payable	$ 60	3.0%						
Receivables	375	Accruals	140	7.0%						
Inventories	615	Notes payable	110	5.5%	$ 110		$ 110			
Total C.A.	$1,000	Total C.L.	$ 310	15.5%						
Net fixed assets	$1,000	Long-term debt	750	37.5%	750		750			
		Total liabilities	$1,060	53.0%	$ 860	47.8%	$ 860	42.7%	45.0%	
		Preferred stock	-	0.0%	-	0.0%	-	0.0%	2.0%	
		Common stock	130	6.5%	130					
		Retained earnings	810	40.5%	810					
		Total common equity	$ 940	47.0%	$ 940	52.2%	$1,153	57.3%	53.0%	
Total	$2,000	Total	$2,000	100.0%	$1,800	100.0%	$2,013	100.0%	100.0%	

Notes:
1. The market value calculations assume that the company's debt is trading at par, so the market value of debt equals the book value of debt.
2. The market value of equity is the share price of common stock multiplied by the number of shares outstanding. At 12/31/18, the firm has 50 million shares outstanding, and its stock sold for $23.06 per share.

Figuring out the cost of capital provided by investors in the form of:

- Preferred Stock
- Interest Bearing Debt
- Common Equity

Most investors focus on the current values of the companies Debt vs. Equity.

A **Target Captial Structure** is how a firm plans to invest and spend its money for returns in the future. **Investor supplied items** like preferred stock, common equity, and investor supplied debt, are called **capital components**. The cost of each of these individual components is called its **component cost**.

WACC = (% of debt)(After-tax cost of debt) + (% of prefered stock)(cost of prefered stock) + (% of common equity) (cost of common equity) = $w_d r_d(1-T) + w_p r_p + w_c r_s$

Interest a firm must pay on new debt is its **before-tax cost of debt.** but we use **after-tax cost of debt** for calculating average cost of capital since interest is tax deductible.

After tax cost savings = interest rate on new debt - tax savings = $r_d - r_d T = r_d(1-T)$

Cost of preferred stock = r_p = $\frac{D_p}{P_p}$

Common equity can be raised two ways:

1. Retaining some of the current years earnings
2. Issuing new common stock

r_s designates the cost of retained earnings, and r_e desginates the cost of new common stock (or external equity). Issuing new stock costs more in administrative costs, so often isn't done often by large companies.

Because investors have opportunity costs, the firm needs to earn atleast as much on their retained earnings as stockholders could make in other investments of comparable risk.

If the firm cannot make atleast $\hat{r}_s = r_s$, then it should return the earnings to its shareholders as a dividend.
To find r_s we can use the many forms of:
Required Rate of return = Expected rate of return
$r_s = r_{RF} + RP = \frac{D_1}{P_0} + g = \hat{r}_s$

Estimating cost of common equity with the CAPM approach (capital asset pricing model).

1. Estimate the risk free rate (r_{RF}), typically done by the 10-year treasury bond rate.
2. Estimate the Comany's beta, and use it as an index of the stock's risk.
3. Find the Market Risk premium $RP_M = r_M - r_{RF}$
4. Find $r_s = r_{RF} + (RP_M)b_i$

Estimating cost of common equity with the Bond plus Yeild approach.
$r_s =$ Bond Yeild + Risk Premium

Estimating cost of common equity with the Discounted Cash Flow Approach:
$\hat{r}_s = \frac{D_1}{P_0} + g$

Since these three methods can produce differnet results, accountants often use all three and average the methods to get their final rate.

Firms typically use investment bankers, which cost r_e in *flotation costs* to issue new common stock
Factoring for flotation costs:

1. Adding it to upfront costs (therefore reducing rate of return of the project)
2. Recalculate the Cost of Capital debt to consider flotation costs
    1. $r_e = \frac{D_1}{P_0(1-F)} + g$
    2. Difference between calculated and DFC is Flotation Cost Adjustment
    3. Flotation Cost Adjustment = Corrected DFC cost - Pure DFC cost
    4. Cost of External Equity = r_s + Flotation Cost Adjustment

When do you need to raise capital instead of just keep retained earnings?
Found using retained earnings breakpoint,

Retained Earnings Breakpoint = Addition to retained earnings for the year / Equity Fraction

Factors that affect WACC

1. Factors a Firm cannot Control
    1. Interest Rates in the Economy
    2. The general level of stock prices
    3. Tax Rates
2. Factors a firm can Control
    1. Changing its capital structure
    2. Changing dividend payout ratio
    3. altering its capital budgeting descisions rules

Problems with CoC measurments

1. Depreication Generated Funds - The largest source of capital for many firms is depreciation, but the cost of capital is determined by either being reinvested or returned to investors.
2. Privately owned firms - Harder to obtain proper data for for these measurements
3. It's very hard to estimate for g and risk premium
4. Cost of capital projects for different risks - hard to estimate the riskiness of individual projects
5. Capital structure weights - We first need a target captial structure