4B) EQUITY & DEBT, COST of CAPITAL

E*quity financing* often means issuing additional shares of common stock to an investor. With more shares of common stock issued and outstanding, the previous stockholders' percentage of ownership decreases.

D*ebt financing* means borrowing money and *not* giving up ownership. Debt financing often comes with strict conditions or covenants in addition to having to pay interest and principal at specified dates. Failure to meet the debt requirements will result in severe consequences. The interest on debt is a deductible expense when computing taxable income. This means that the effective interest cost is less than the stated interest if the company is profitable. Adding too much debt will increase the company's future cost of borrowing money and it adds risk for the company.

What are the differences between debt and equity markets?
The basic differences between the debt and equity markets include the type of financial interest they represent, the way in which they generate profits for investors, how they are traded and their respective risk levels. Both debt securities and equity investments have the potential to deliver significant returns.

Debt Investments
Investments in debt securities typically involve less risk than equity investments. However, they also typically offer a correspondingly lower potential return on investment. These investments fluctuate less than the stock market between highs and lows, thus making them less volatile than common stocks. Debt investments are not centrally traded but are traded over-the-counter, or OTC. Bonds are the leading form of debt investments, although mortgages are also included in this asset category. Mortgage investments are secured by the underlying real estate as collateral. Historical data show that both bond and mortgage markets have been exposed to far fewer significant changes in price than stocks. Also, in the event a company is liquidated, bondholders are the first to be paid.

Equity Investments
Equity investments, the buying and selling of stock, are conducted on regular trading exchanges. No matter the kind, all stock markets have the potential to be volatile and experience dramatic fluctuations in share values. These substantial price swings can sometimes have very little to do with the stability and good name of whatever corporation's value they represent; instead they are caused by social, political, governmental or general economic issues occurring within the origin country of the corporation. Equity investments can essentially be viewed as taking on a greater risk of loss for the chance to earn a potentially higher return. Equity investing, to be successful, requires a substantially higher level of research and monitoring investments. There is generally a much higher turnover rate in the holdings of equity portfolios as compared to bond portfolios. Equity investments represent an ownership interest in a company, while bonds only represent a financial interest.

Debt vs. Equity - Advantages and Disadvantages
In order to expand, it's necessary for business owners to tap financial resources. Business owners can utilize a variety of financing resources, initially broken into two categories, debt and equity. "Debt" involves borrowing money to be repaid, plus interest, while "equity" involves raising money by selling interests in the company.
Essentially you will have to decide whether you want to pay back a loan or give shareholders stock in your company. The following table discusses the advantages and disadvantages of debt financing as compared to equity financing.

A*dvantages of Debt Compared to Equity*
- Because the lender does not have a claim to equity in the business, debt does not dilute the owner's ownership interest in the company.
- A lender is entitled only to repayment of the agreed-upon principal of the loan plus interest, and has no direct claim on future profits of the business. If the company is successful, the owners reap a larger portion of the rewards than they would if they had sold stock in the company to investors in order to finance the growth.
- Except in the case of variable rate loans, principal and interest obligations are known amounts which can be forecasted and planned for.
- Interest on the debt can be deducted on the company's tax return, lowering the actual cost of the loan to the company.
- Raising debt capital is less complicated because the company is not required to comply with state and federal securities laws and regulations.
- The company is not required to send periodic mailings to large numbers of investors, hold periodic meetings of shareholders, and seek the vote of shareholders before taking certain actions.

D*isadvantages of Debt Compared to Equity*
- Unlike equity, debt must at some point be repaid.

- Interest is a fixed cost which raises the company's break-even point. High interest costs during difficult financial periods can increase the risk of insolvency. Companies that are too highly leveraged (that have large amounts of debt as compared to equity) often find it difficult to grow because of the high cost of servicing the debt.
- Cash flow is required for both principal and interest payments and must be budgeted for. Most loans are not repayable in varying amounts over time based on the business cycles of the company.
- Debt instruments often contain restrictions on the company's activities, preventing management from pursuing alternative financing options and non-core business opportunities.
- The larger a company's debt-equity ratio, the more risky the company is considered by lenders and investors. Accordingly, a business is limited as to the amount of debt it can carry.
- The company is usually required to pledge assets of the company to the lender as collateral, and owners of the company are in some cases required to personally guarantee repayment of the loan.

***G**etting Legal Advice About Business Financing*

Deciding whether to finance your new business venture through loans or giving shareholders a stake in your company is a serious matter and you should understand your options before making this decision. Contact a business and commercial law attorney today to answer you questions, help you review your options, and more.

***C**ost of capital*

In economics and accounting, the cost of capital is the cost of a company's funds (both debt and equity), or, from an investor's point of view "the required rate of return on a portfolio company's existing securities". It is used to evaluate new projects of a company. It is the minimum return that investors expect for providing capital to the company, thus setting a benchmark that a new project has to meet.

For an investment to be worthwhile, the expected return on capital has to be higher than the cost of capital. Given a number of competing investment opportunities, investors are expected to put their capital to work in order to maximize the return. In other words, the cost of capital is the rate of return that capital could be expected to earn in the best alternative investment of equivalent risk. If a project is of similar risk to a company's average business activities it is reasonable to use the company's average cost of capital as a basis for the evaluation. However, for projects outside the core business of the company, the current cost of capital may not be the appropriate yardstick to use, as the risks of the businesses are not the same.

A company's securities typically include both debt and equity, one must therefore calculate both the cost of debt and the cost of equity to determine a company's cost of capital. Importantly, both cost of debt and equity must be forward looking, and reflect the expectations of risk and return in the future. This means, for instance, that the past cost of debt is not a good indicator of the actual forward looking cost of debt.

Once cost of debt and cost of equity have been determined, their blend, the weighted average cost of capital (WACC), can be calculated. This WACC can then be used as a discount rate for a project's projected cash flows.

***C**ost of debt*

When companies borrow funds from outside or take debt from financial institutions or other resources the interest paid on that amount is called cost of debt. The cost of debt is computed by taking the rate on a risk-free bond whose duration matches the term structure of the corporate debt, then adding a default premium. This default premium will rise as the amount of debt increases (since, all other things being equal, the risk rises as the cost of debt rises). Since in most cases debt expense is a deductible expense, the cost of debt is computed as an after tax cost to make it comparable with the cost of equity (earnings are taxed as well). Thus, for profitable firms, debt is discounted by the tax rate.

***C**ost of equity*

The cost of equity is *inferred* by comparing the investment to other investments (comparable) with similar risk profiles.

***W**eighted Average Cost of Capital (WACC)*

Weighted average cost of capital (WACC) is the average of the minimum after-tax required rate of return which a company must earn for all of its security holders (i.e. common stock-holders, preferred stock-holders and debt-holders). It is calculated by finding out cost of each component of a company's capital structure, multiplying it with the relevant proportion of the component to total capital and then summing up the proportionate cost of components. WACC is a very useful tool because it tells whether a particular project is increasing shareholders' wealth or just compensating the cost.

For a company which has two sources of finance, namely equity and debt, WACC is calculated using the following formula **:**

$$WACC = r(E) \times w(E) + r(D) \times (1 - t) \times w(D)$$

Cost of equity

In the formula for WACC, r(E) is the cost of equity i.e. the required rate of return on common stock of the company. It is the minimum rate of return which a company must earn to keep its common stock price from falling. Cost of equity is estimated using different models, such as dividend discount model (DDM) and capital asset pricing model (CAPM).
After-tax cost of debt

In the WACC formula, r(D) × (1 – t) represents the after-tax cost of debt i.e. the after-tax rate of return which the debt-holders need to earn till the maturity of the debt. Cost of debt of a company is based on the yield to maturity of the relevant instruments. If no yield to maturity is available, the cost can be estimated using the instrument's current yield, etc. After-tax cost of debt is included in the calculation of WACC because debt offers a tax shield i.e. interest expense on debt reduces taxes. This reduction in taxes is reflected in reduction in cost of debt capital.

Weights
w(E) is the weight of equity in the company's total capital. It is calculated by dividing the market value of the company's equity by sum of the market values of equity and debt.
w(D) is the weight of debt component in the company's capital structure. It is calculated by dividing the market value of the company's debt by sum of the market values of equity and debt.
Ideally, WACC should be estimated using target capital structure, which is the capital structure the company's management intends to maintain in the long-run. For practical purposes, market values are usually used and where the market values are not available, book values may be used to find out the weight.

Example **:** Sanstreet, Inc. went public by issuing 1 million shares of common stock @ $25 per share. The shares are currently trading at $30 per share. Current risk free rate is 4%, market risk premium is 8% and the company has a beta coefficient of 1.2.
During last year, it issued 50,000 bonds of $1,000 par paying 10% coupon annually maturing in 20 years. The bonds are currently trading at $950.
The tax rate is 30%. Calculate the weighted average cost of capital.

Solution **:** First we need to calculate the proportion of equity and debt in Sanstreet, Inc. capital structure.
Current Market Value of Equity = 1,000,000 × $30 = $30,000,000
Current Market Value of Debt = 50,000 × $950 = $47,500,000
Total Market Value of Debt and Equity = $77,500,000
Weight of Equity = $30,000,000 / $77,500,000 = 38.71%
Weight of Debt = $47,500,000 / $77,500,000 = 61.29%, or
Weight of Debt = 100% minus cost of equity = 100% − 38.71% = 61.29%
Now, we need estimates for cost of equity and after-tax cost of debt.
We can estimate cost of equity using either dividend discount model (DDM) or capital asset pricing model (CAPM).
Cost of equity (DDM) = expected dividend in 1 year /current stock price + growth rate
Cost of equity (CAPM) = risk free rate + beta coefficient × market risk premium
In the current example, the data available allow us to use only CAPM to calculate cost of equity.
Cost of Equity = Risk Free Rate + Beta × Market Risk Premium = 4% + 1.2 × 8% = 13.6%
Cost of debt is equal to the yield to maturity of the bonds. With the given data, we can find that yield to maturity is 10.61%. It is calculated using hit and trial method. We can also estimate it using MS Excel RATE function.
For inclusion in WACC, we need after-tax cost of debt, which is 7.427% [= 10.61% × (1 − 30%)].
Having all the necessary inputs, we can plug the values in the WACC formula to get an estimate of 9.82%.
WACC = 38.71% × 13.6% + 61.29% × 7.427% = 9.8166%

It is called weighted average cost of capital because as you see the cost of different components is weighted according to their proportion in the capital structure and then summed up.

Importance of WACC
Weighted average cost of capital is the discount rate used in calculation of net present value (NPV) and other valuations models such as free cash flow valuation model. It is the hurdle rate in the capital budgeting decisions.
WACC represents the average risk faced by the organization. It would require an upward adjustment if it has to be used to calculate NPV of projects which are riskier than the company's average projects and a downward adjustment in case of less risky projects. Further, WACC is after all an estimation. Different models for calculation of cost of equity may yield different values.