Introduction to Finance – II
Overview of Block 3
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The only way a company can increase its value is by investing in projects that earn a higher rate of return than its overall (after-tax) cost of capital. Capital refers to the resources to which the company has access for the purpose of investing in long-term projects. Financial capital is in the form of debt and equity. The pre-tax cost of capital–from the company's perspective– is the same as the pre-tax expected return on capital–from the investors' perspectives.

Since debt entails concrete promised cash flows and a set time line, it is much easier to measure its costs than equity. We saw that the pre-tax expected return on debt consists of two parts: compensation for the passage of time (which depends on the term of the debt, and the yield curve), and a risk premium. This is not the same thing as the yield to maturity, as that also includes compensation for the expected loss (i.e., the hazard rate). Nevertheless, we can use a rule of thumb to disentangle the risk premium from the yield to maturity on a debt instrument. The elementary rule of thumb we use in FIN 510 is that the credit spread on a debt instrument reflecte equal parts risk premium and hazard rate.

In the case of equity– which for a public company is its traded common stock, there is nothing analogous to yield to maturity, so we generally resort to using historical data and a theoretical framework (or model) to measure its risk premium and expected return. Fundamentally, the concept is just like debt. The investor has to be compensated for the passage of time and the extent to which the stock is exposed to non-diversifiable systematic risk. For the purposes of this class we will use the Capital Asset Pricing Model (CAPM) to this end. We will also assume that stock returns are normally distributed. I do not want to imply that either of these is true, but we need a theoretical foundation on which to build.

Using the CAPM to measure the expected return on a stock requites that we understand the following:

1. Constructing a stock's holding period return from its prices and distributions;
2. Estimating the mean return and return variance of "the market."
3. Estimating the stock's mean return, return variance, and covariances with other stocks and the market.
4. The stock's β.

Under the CAPM, the investor's pre-tax expected return (and company i's after-tax cost of equity capital) is:

$$E(r_i) = r_f + \beta_i \left[E(r_m) - r_f\right]$$

We see the similarity with corporate debt: The expected return has to compensate the investor for the passage of time (the risk free rate, r_f), and the risk premium. Just as with debt, the risk premium is measured by how much exposure the investment has to systematic risk. Here systematic risk is measured by the risk premium on the stock market, and stock i's exposure to systematic risk is measured by β_i.

Following the intuition that we built in our discussion of the risk premia on debt, we are using the return on the market as a proxy measure for the overall well-being of the economy. Recall why natural disaster catastrophe bonds have no risk premium.

We don't want to behave as if this equation is the end of the story. We know what the risk free rate is. For US companies the yield to maturity on the 30-year US Treassury Bond is a good approximation. But we don't know β_i, and we don't know the market's risk premium. Nevertheless, there is useful insight from the CAPM:

- Only risk that can't be diversified will earn a risk premium; and
- most of the components in the cost of equity capital derive from the macro economy (i.e., the risk free rate and the market risk premium); and
- as with debt, we look to the financial markets to learn about our costs of equity capital.