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Integrating country risk premiums in valuation models:

Methodologies for adjusting the cost of capital in different markets

Always keep in mind that the valuation is linked to a definition and to a specific date

Definitions of Value

Fair Market Value	• Tax reporting
Market Value	• Real estate and tangible asset appraisal
Fair Value	• Financial reporting and litigation
Investment Value	• Private company sale
Intrinsic Value	• Investment analysis

Different Definitions of Value can lead to different value estimates.

Key elements in determining the definition of value to apply include the following:

1. **The status of the company** (i.e., whether it is a going concern)
2. **The reason for the valuation.**

Definitions of Value

A. **Fair Market Value:** Price (cash) at which an asset would change hands between a **hypothetical** willing and able buyer and a **willing** and able seller **in an arm's length transaction.**

B. **Market Value:** The **International Valuation Standards Committee** defines market value as "the estimated amount for which a property should **exchange on the date of valuation** between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, **and without compulsion**." This definition is often used in real estate and other tangible asset appraisals when money is borrowed against the value of such assets.

C. **Fair Value:** Used in **financial reporting and litigation**. Under IFRS, fair value is "the price that would be received for an asset or paid to transfer a liability in a **current transaction between marketplace participants in the reference market for asset or liability."** Under US GAAP, fair value is defined as "the price that would be received for an asset or paid to transfer a liability in an **orderly transaction between market participants at the measurement date."** The definition of fair value in a litigation context is similar to the above definitions.

Definitions of Value

D. **<u>Investment Value:</u>** The value **to a particular investor** based on the investor's investment requirements and expectations. It differs from the other definitions because **it focuses on a specific buyer** rather than the value in a "market" context.

E. **<u>Intrinsic Value:</u>** The value that an investor considers, on the basis of an evaluation or available facts, to be the "true" or "real" value that will become the market value when other investors reach the same conclusion. This definition **attempts to capture the value of an asset absent any short-term pricing aberrations** perceived as resulting in an asset value that is over- or understated.

Valuation approaches

Income Approach	• Based on the present value of expected future cash flows or income and we need to calculate or determine the relevant discount rate.
Market Approach	• Based on pricing multiples from sales of similar companies
Asset-Based Approach	• Based on the value of the company's net assets (assets minus liabilities)

Since we will be addressing the cost of equity and cost of capital in cross border transactions, in this presentation we will be focusing on the Income approach as a valuation approach.

Income Approach: Three Methods

1. **Free Cash Flow Method**
   - Based on the present value of future estimated cash flows and a terminal value using a risk-adjusted discount rate;
   - The free cash flow method used here is a two-stage model;
   - The terminal value estimate captures the value of the business at the end of the initial rapid growth projection period;
   - PV of expected future cash flows + PV of terminal value.

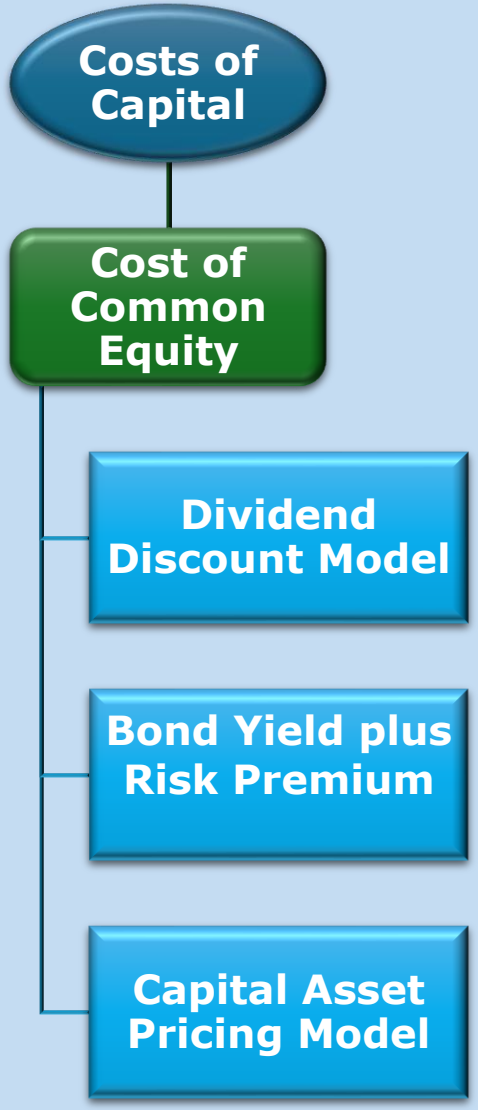
2. **Capitalized Cash Flow**
   - Based on a single estimate of economic benefits divided by an appropriate capitalization rate (discount rate and long term growth rate come into play).

3. **Residual Income (Excess earnings)**
   - Based on an estimate of the value of intangible assets, working capital, and fixed assets;
   - Residual income (RI) = Normalized earnings – Return on working capital – Return on fixed assets;
   - Value of Intangible asset = RI * (1+ g)/(r - g).
   - Value of the firm = Working capital + Fixed assets + Intangible assets

Discount Rate Estimation Issues

1) The **weights** should reflect **how the company will raise additional capital** and market values;
2) Ideally, we **would like to know the company's target capital structure**, which is the capital structure that corresponds to **the company's goal**, **but we cannot observe this goal;**
3) **Alternatives:**
   a) Assess the market value of the company's capital structure components;
   b) Examine trends in the company's capital structure or sector;
   c) Use capital structures of comparable companies (e.g., weighted average of comparables' capital structure at market values and considering valuation date).

Cost of Sources of Capital



The investor (residual claimant) or shareholder has to be compensated with a return above the risk free rate as a consequence of the operational risk and the leverage risk of the company.

Discount Rate Estimation Issues

Cost of Equity (is not observable and therefore has to be estimated)

Methods of estimating the cost of equity:

1) **Dividend discount model;** assumes that the value of a stock today is the present value of all future dividends, discounted at the required rate of return;
2) **Bond yield plus risk premium;** requires adding a premium to a company's yield on its debt. This approach is based on the idea that the equity of the company is riskier than its debt, but the cost of these sources move in tandem.
3) **Capital asset pricing model or CAPM.** The CAPM is the approach **most commonly used to calculate the cost of common stock.** Since I normally use this approach, I will focus on this approach to estimate the cost of equity during my presentation.

Required Rate of Return Models

The CAPM

- R_f
- B_i(equity risk premium)
-
-
-

Modified CAPM

- R_f
- B_i(equity risk premium)
- Small stock premium
- Company-specific risk
- Country risk
- Ratio of volatilities

Build-Up Approach

- R_f
- Equity risk premium
- Small stock premium
- Company-specific risk
- Industry risk premium

Discount Rate Estimation Issues

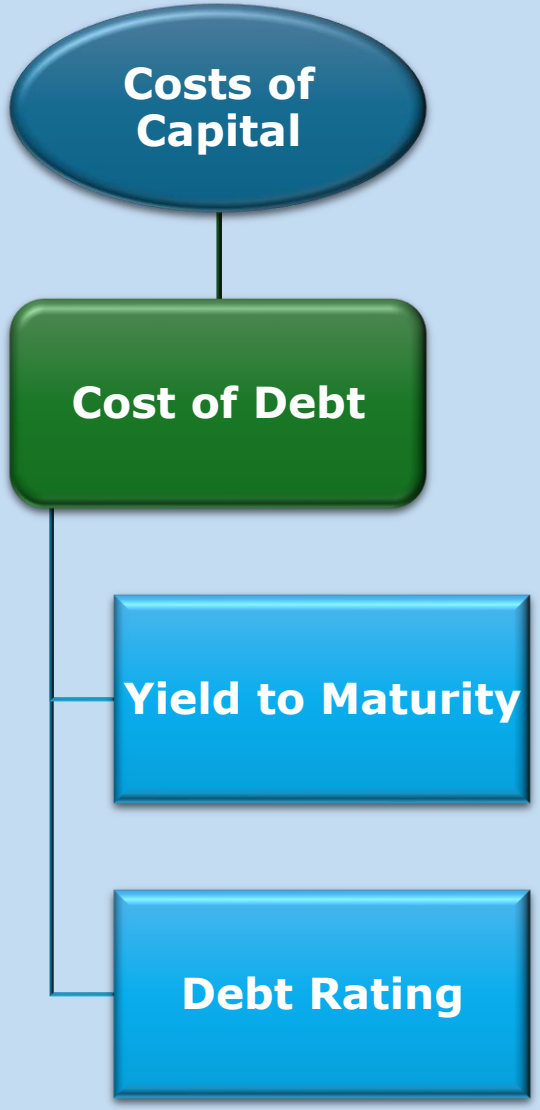
Cost of Equity (is not observable and therefore has to be estimated)

- **In addition to the basic CAPM we need to consider the following;**
- **Size Premiums when considered also increase the cost of equity;**
- **CSRP; Projection Risk or uncertainty associated with future cash flows, use professional Judgement;**
- **Life Cycle stage; classification, early stage difficulties;**
- **Country risk; in cross-border transactions it is very useful to use the Tbond (US Bond) as the risk free rate; therefore a country risk has to be added to calculate the modified CAPM (within the ERP or added after the CAPM formula)?;**
- **Different measures of country risk exist; which one is the most appropriate one?;**
- **As a consequence we end-up using the modified CAPM to estimate the cost of equity.**

=> Take also into consideration that the Country risk cannot be the same than the one used in the cost of debt, it needs to be adjusted;

- **This adjustment is performed by the use of the ratio of volatilities of domestic stocks vs domestics bonds in local currency, however not every country has this type of data available which is also a problem *(but there is always a solution).***

Cost of Sources of Capital



Discount Rate Estimation Issues

Cost of Debt

- **Higher operating risk → increased cost of debt**
- **Do not look at historical cost of debt;**
- **We need to calculate cost of debt at valuation date;**
- **Alternatives to calculate cost of debt at valuation date:**
  a) **Yield-to-maturity approach: Calculate the yield to maturity on the company's current debt;**
  b) **Debt-rating approach: Use yields on comparably rated bonds with maturities similar to what the company has outstanding.**
- **I normally use the second alternative using the US corporate yield curve as of valuation date;**
- **As a consequence I also have to adjust the before tax cost of debt to include the country risk component;**
- **After calculating the domestic cost of debt in US terms I derive the after tax cost of debt in US terms;**
- **We need to assure consistency also between the cash flows and discount rate in terms of currency.**
- **I use the Fisher Parity to transform a dollar denominated discount rate into a domestic currency rate (pay close attention to use a long term inflation forecast).**

Discount Rate Estimation Issues

Other Issues in Estimating the Cost of Debt

1) **The cost of floating-rate debt is difficult because the cost depends not only on current rates but also on future rates;**
   - **Possible approach: Use current term structure to estimate future rates;**
2) **Option-like features affect the cost of debt.**
   - **If the company already has debt with embedded options similar to what it may issue, then we can use the yield on current debt;**
   - **If the company is expected to alter the embedded options, then we would need to estimate the yield on the debt with embedded options.**
3) **Nonrated debt makes it difficult to determine the yield on similarly yielding debt if the company's debt is not traded.**
   - **Possible remedy: Estimate rating by using financial ratios (which is another solution I normally implement).**
4) **Leases are a form of debt, but there is no yield to maturity**
   - **Estimate by using the yield on other debt of the company.**

Discount Rate Estimation Issues

We use the Country risk within the cost of equity and the cost of debt;

- **3 main sources of country risks premiums but not always available (country ratings, CDs or if the country issues dollar denominated sovereign debt we can of course use the spread of that debt when compared to the Tbond of the same tenure as a proxy the country risk);**
- **Not every country issues sovereign debt in USD. Second alternative when CDs is available is preferable to country risk based on country ratings;**
- **Country ratings are reviewed every 6 months and are based on macroeconomic data that is not a leading indicator and may not be a good indicator of what is going on at valuation date;**

Discount Rates in an Acquisition Context

- **The discount rate should be consistent with cash flows, not buyer's cost of capital;**
- **The WACC rate should also be consistent with the capital structure of the combined (target) firm;**
- **When flotation costs are costs incurred in the process of raising additional capital, the preferred method to include these costs in the analysis is as an initial cash flow in the valuation analysis;**
- **Always perform a goal seek procedure when calculating before taxes discount rates and prefer a combination of after tax cash flows together with an after tax discount rate.**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