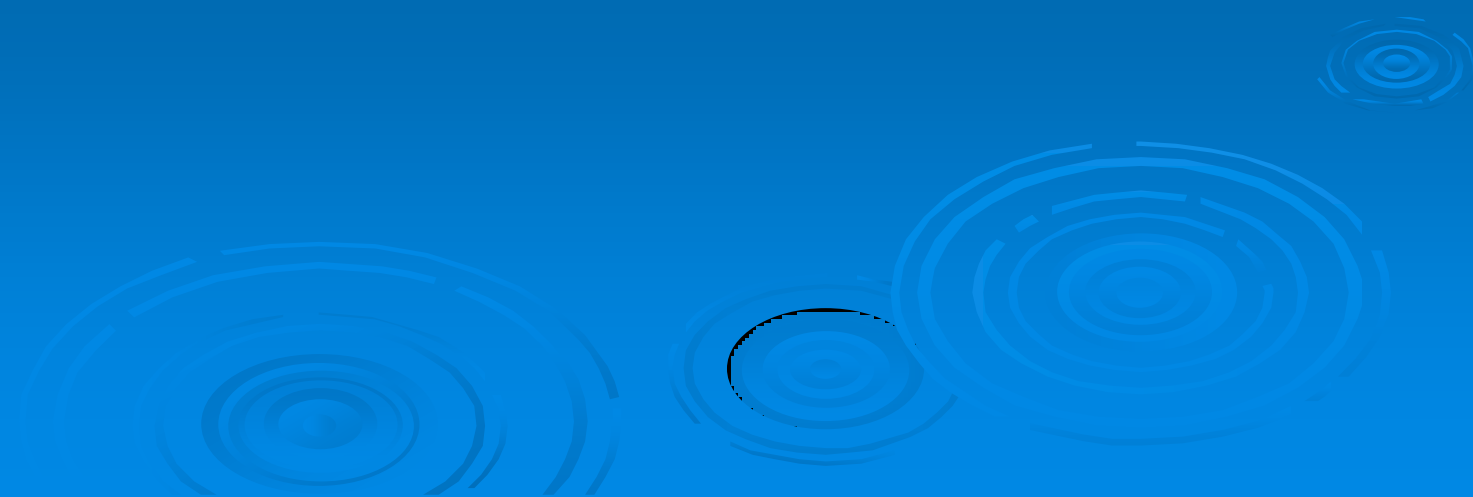





# Business Valuation V.



# Particular steps for DCF Valuation

1. Pick a firm 
2. Obtain its financials 
3. Analyze business where your firm operates (SLEPT) - next week
4. Analyze financials - in fortnights
5. Estimate a market risk premium - today
6. Estimate a bottom-up unlevered beta -today
7. Estimate cost of debt -next week
8. Estimate a tax rate -today
9. Estimate a cost of capital  -next week
10. Estimate a historical growth in earnings - from financial analysis
11. Estimate EBIT
12. Obtain analyst forecast of EBIT - from 10.
13. Estimate length for periods

# Where to obtain data for WACC

## Data for WACC



# Discount rates

Critical ingredient in discounted cashflow valuation. Errors in estimating the discount rate or mismatching cashflows and discount rates can lead to serious errors in valuation.

n At an intuitive level, the discount rate used should be consistent with

both the riskiness and the type of cashflow being discounted.

- Equity versus Firm: If the cash flows being discounted are cash flows to equity, the appropriate discount rate is a cost of equity. If the cash flows are cash flows to the firm, the appropriate discount rate is the cost of capital.

- Currency: The currency in which the cash flows are estimated should also

# The Cost of Equity

## Model Expected Return

$$\text{CAPM } E(R) = R_f + b (R_m - R_f) + R_c$$

## Inputs Needed

- Riskfree Rate
- Beta relative to market portfolio
- Market Risk Premium
- Country risk premium

$R_f$  = Riskfree rate

$E(R_m)$  = Expected Return on the Market Index

(Diversified Portfolio) = Implied Equity Risk Premium

$R_c$  = Country risk premium

In practice,

- Short term government security rates are used as risk free rates
- Historical risk premiums are used for the risk premium
- Betas are estimated by regressing stock returns against market returns

Thus, the riskfree rates in valuation will depend upon when the cash flow is expected to occur and will vary across time

n A simpler approach is to match the duration of the analysis (generally long term) to the duration of the riskfree rate (also long term)

In emerging markets, there are two problems:

- The government might not be viewed as riskfree (Brazil, Indonesia)
- There might be no market-based long term government rate (China)

# Estimating a Riskfree Rate

Estimate a range for the riskfree rate in local terms:

- Approach 1: Subtract default spread from local government bond rate:

Government bond rate in local currency terms - Default spread for Government in local currency

- Approach 2: Use forward rates and the riskless rate in an index currency

(say Euros or dollars) to estimate the riskless rate in the local currency.

n Do the analysis in real terms (rather than nominal terms) using a real

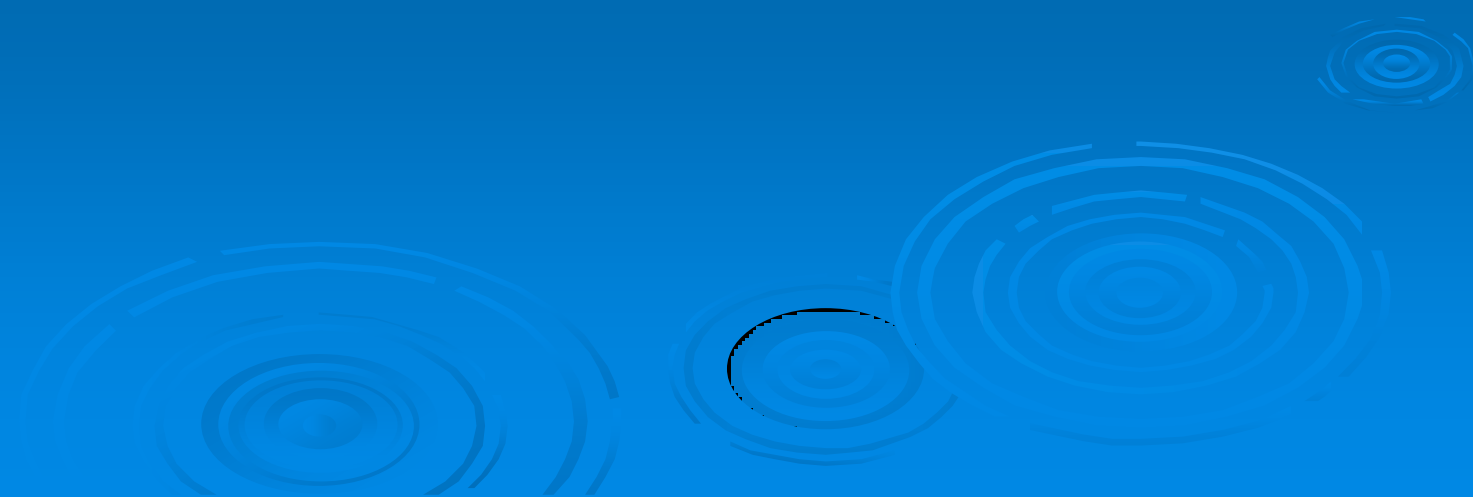
riskfree rate, which can be obtained in one of two ways –

- from an inflation-indexed government bond, if one exists



# Beta

## Beta by Industry



# Everyone uses historical premiums

The historical premium is the premium that stocks have historically earned over riskless securities.

n Practitioners never seem to agree on the premium; it is sensitive to

- How far back you go in history...
- Whether you use T.bill rates or T.Bond rates
- Whether you use geometric or arithmetic averages.

n For instance, looking at the US:

Arithmetic average    Geometric Average

Historical Period    T.Bills    T.Bonds    T.Bills    T.Bonds

1928-2001    8.09%    6.84%    6.21%    5.17%

1962-2001    5.89%    4.68%    4.74%    3.90%

1991-2001    10.62%    6.90%    9.44%    6.17%

# Country Risk Premiums

Country risk premium = Risk Premium<sub>US</sub> + Country bond default spread

- Combined approach: In this approach, the country risk premium incorporates both the country bond spread and equity market volatility.

Country Risk Premium



# Estimating the Cost of Debt

The cost of debt is the rate at which you can borrow at currently, It will reflect not only your default risk but also the level of interest rates in the market.

The two most widely used approaches to estimating cost of debt are:

- Looking up the yield to maturity on a straight bond outstanding from the firm. The limitation of this approach is that very few firms have long term straight bonds that are liquid and widely traded



# Cost of Debt computations

Companies in countries with low bond ratings and high default risk might bear the burden of country default risk

- For Siderar, the rating estimated of A- yields a cost of debt as follows:

Pre-tax Cost of Debt in 1999

= US T.Bond rate + Country default spread + Company Default Spread

= 6% + 5.25% + 1.25% = 12.50%

n The synthetic rating for Titan is AAA. The default spread in 2001 is 0.75%.

Pre-tax Cost of Debt

Risk-free Rate + Country Default Spread + Company Default Spread

# Estimating Cost of Capital: Example

## Equity

Mature market premium



Greek country premium



- Cost of Equity = 5.10% + 0.96 (4%+1.59%) = 10.47%
- Market Value of Equity = 739,217 million GDr (78.7%)

Company default spread



Country default spread



## Debt

- Cost of debt = 5.10% + 0.75% + 0.95% = 6.80%
- Market Value of Debt = 199,766 million GDr (21.3 %)

## Cost of Capital

$$\text{Cost of Capital} = 10.47 \% (.787) + 6.80\% (1 - .2449) (0.213)) \\ = 9.33 \%$$

# References

Damodaran.com

