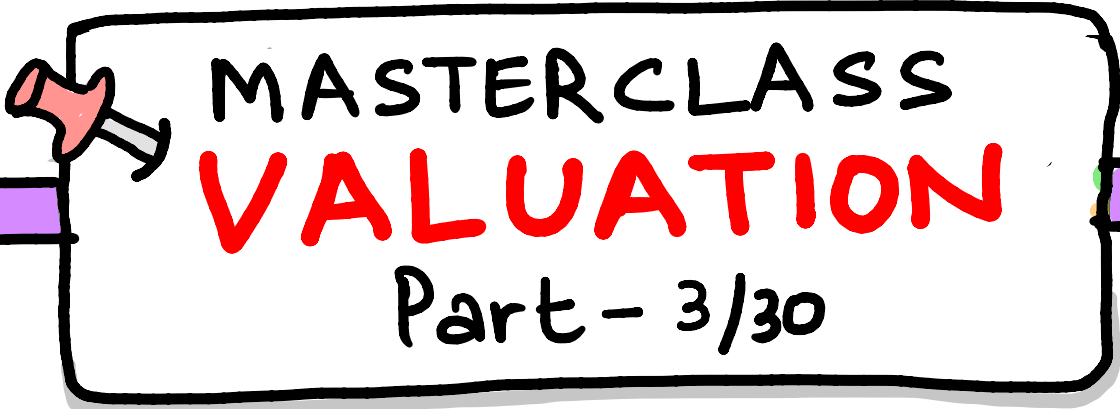# The Valuation School

MASTERCLASS
VALUATION
Part- 3/30

DCF - Risk free Rate

Hey, Goodmorning! →

- In part 2 (Link in post above) we understood three pillars of DCf
- Cash flow, Growth, and Risk.
- Today, we will deepdive on Risk and Risk free Rate.
- But before we need to build strong foundation.

Let's start

- **Risk** — It is deviation from expected Resulted. Therefore, both upside or down side deviation is Risk.

- **Risk averse** — In Valuation, we assume that Investors are risk Averse. which means they are ready to take risk for appropriate Return

Risk in Dcf →

- Risk in Dcf is catered through discount Rate Ie. **WACC**

- WACC is weighted Avg cost of capital

$$WACC(Ko) = \left[Ke \times \frac{E}{D+E} \right] + \left[Kd(1-T) \times \frac{D}{D+E} \right]$$
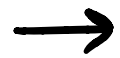
Let's start with cost of Equity

Cost of Equity →

- If you know, cost of debt is explicit ie. written on face of debt Instrument.

- But that is not the case with cost of Equity. It is Implicit. means not mentioned anywhere.

Cost of Equity = Returns expected
(for company)   by Equity shareholders

Cost of Equity (Ke) →

$$Ke = \text{Risk free Rate} + \text{Equity Risk premium} \times \text{Beta}$$

↓ Returns expected without assuming Any Risk

↓ Returns to assume Risk in Equity Market of country

↓ Returns for system-atic Risk

We will learn about ERP & Beta in next session.

Risk free Rate →

It is return on Risk free Investment

Risk free Investment

↓

free from

Default Risk
↳ No Risk of default

Reinvestment Risk
↳ No Risk due to Reinvestment.

- In order to calculate Risk free Rate; we need to negate Default Risk and Reinvest^n Risk

- To Negate Reinvestment Risk Keep Tenure of Risk free Bond and cashflow projection equal.

- Since we value company's cashflow for perpetuity But still 10yr Bond Rate is preferable due to highest liquidity

To Negate Default Risk →

- Reduce default spread of country from local 10 year govt Bond.

i.e.

$$\text{Risk free Rate (in INR)} = \text{10 year govt Band (₹)} - \text{India's default spread.}$$

Let's understand 3 ways to calculate India's Default spread.

What is Default spread ?

So, we need to reduce default spread from Indian 10y govt bond yield.

Because, probability that Indian government may default is not zero.

It is usually assumed developed countries has zero probability of default

∴ their 10y govt yield = Risk free Rate.

How to calculate Default spread for India.

- There are 3 ways to calculate Default Risk spread of India.

    (i) Credit default spread (CDs)

    (ii) Compare with USD Bond of USA.

    (iii) country Rating look up method.

Let's Breakdown all three Methods one by one.

Default Spread of India →

(i) Credit Default Spread (CDS)

- CDS is measure of country's default Risk and it is traded in OTC market

- CDS Rates are usually available through Paid Bloomberg Terminal.

- India's CDS Rate = 2.69%.

∴ India's Risk free Rate (CDS method)

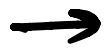10 Year Indian Bond - CDS Spread

$$7.120 - 2.69 = 4.45\%$$

(ii) Country Rating Lookup →

- India's country Rating as per S&P is <u>Baa3</u>

- on an average CDS of Baa3 Rated countries is 1.90%

∴ India's Risk free Rate through this method is

$$7.12 - 1.90\% = 5.22\%$$

Investing.com.

(iii) Compare USD Bond →

In this method we compare 10year USD Bond ~~Issue~~ by our country with 10year USD Bond issued by USA.

**Eg** Say India issued 10y USD Bond at 10% ; whereas 10y Bond by USA = 7.5%.

Here, India gave 2.5% extra return on same bond due to default Risk of India. ∴ Default spread = 2.5%

Some key points to Remember

— Never do Historical Average of Risk free Rate.

— Risk free rate is currency specific means If you are valuing an Indian company in swiss francs. we need to calculate and use Risk free Rate of Switzerland and not India

Be mindful of these facts.

2 Important things →

(i) Start watching free financial modeling course on our YT channel

(ii) Join our whatsapp community to get updates and Exclusive Invite of Regular LIVE Sessions

(Link of Both in comments)
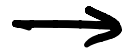
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→

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(link in post above)