Valuation Handbook

CA Shubham Pai

Risk Free Rate

(A Detailed handbook)

CA Shubham Pai

What is meant by "Risk free"

An investment can be referred to as risk-free if below 2 criteria are met

No default risk

No reinvestment risk

Eg. a 10-Year US treasury bond rate (the reason for considering a 10-year bond is that we cannot find a readily tradeable perpetual bond easily to completely eliminate the impact of reinvestment risk)

Factors to be considered to estimate risk free rate

1. Time horizon: The risk-free rates in valuation will depend upon when the cash flow is expected to occur and will vary across time.

2. Currency: A risk-free rate is currency-specific and can be very different for different currencies.

3. All government securities are not risk-free: Some governments face default risk and the rates on bonds issued by them will not be risk-free.

What is risk free rate in real terms (i.e not in nominal terms)

You need a secure investment option that has no risk of default and guarantees a return adjusted for inflation in order to obtain a genuine risk-free rate.

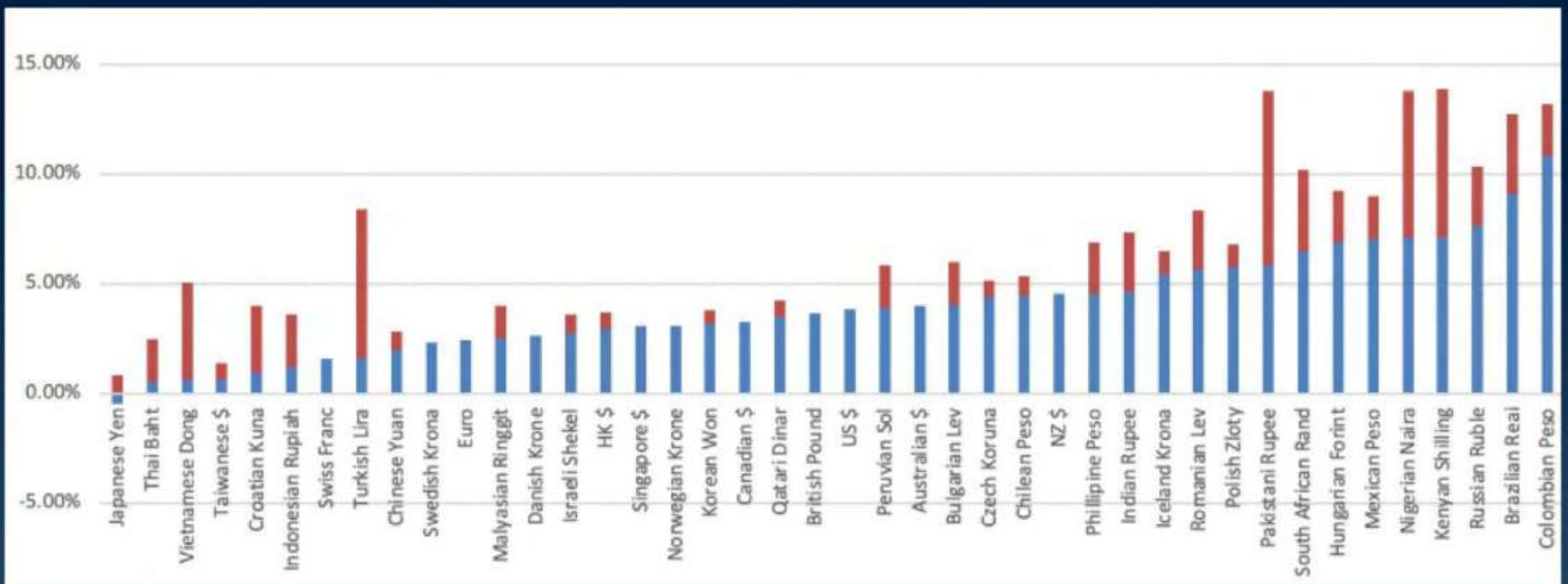Treasury-indexed securities provide this perfect combination.

Why do risk free rates vary across currencies?

Since, Risk-free rate in a currency =

Government bond rate   *minus*

Default Spread for the country

Any alternative for Government bond rate?

Alternative 1: Build-Up Approach

The risk-free rate in any currency can be written as the sum of two variables

Rf = Expected inflation in a currency + Expected real interest rate

Eg. Suppose expected inflation is 7% and the treasury inflation-protected securities rate is 1% then the risk-free rate will be 8%

Alternative 2: Considering US risk-free rate as a base

You can scale up the risk-free rate in a base currency (US $) by the differential inflation between the base currency and the currency in question. In US $:

$$(1 + Riskfree\ rate_{US\ \$}) \frac{(1 + Expected\ Inflation_{Foreign\ Currency})}{(1 + Expected\ Inflation_{US\ \$})} - 1$$
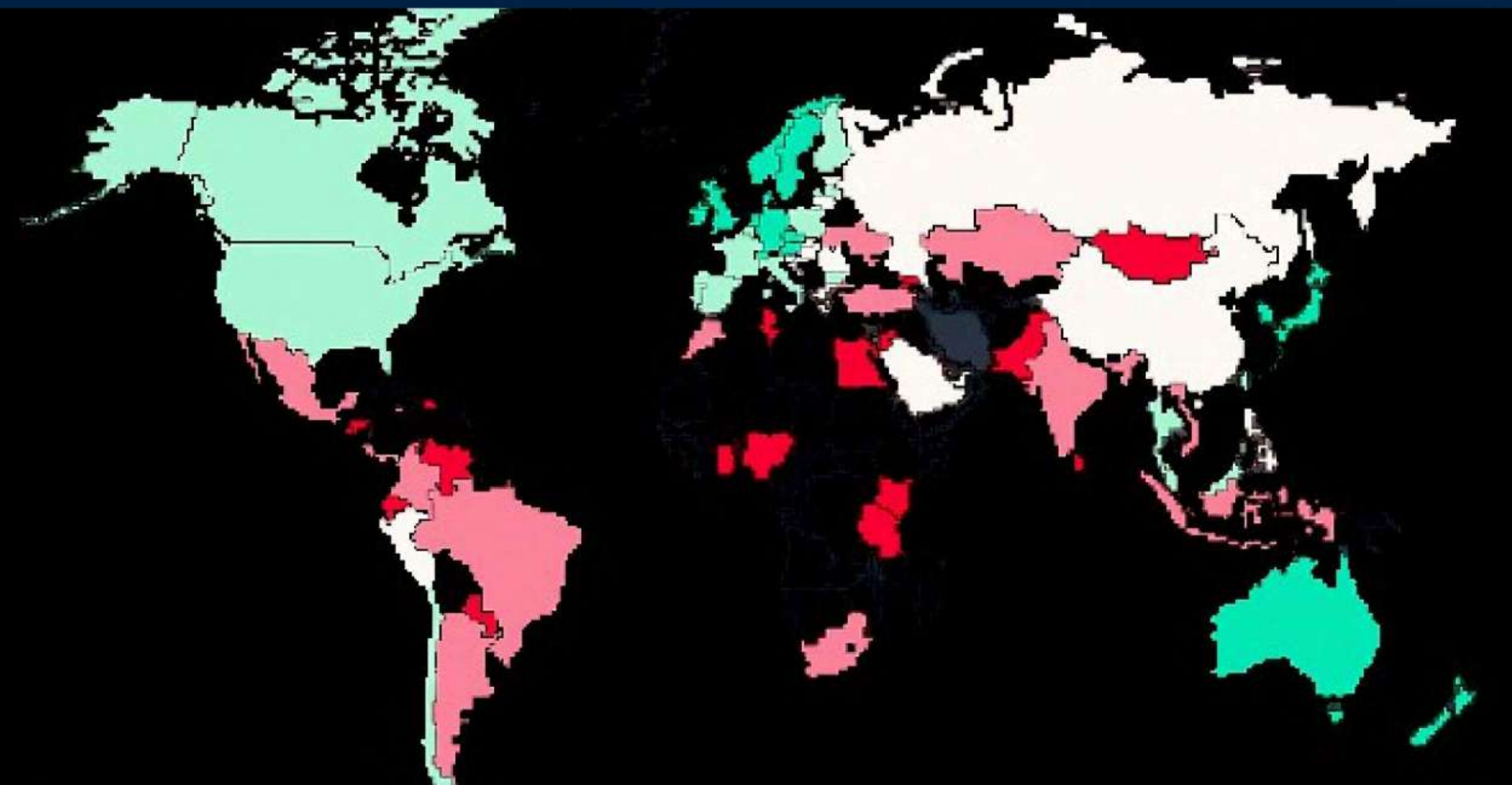
Thus, if the **US $ risk-free rate is 2.0%**, the **inflation rate in Egyptian pounds is 15%** and the inflation rate in the **US $ is 1.5%**, the foreign currency risk-free rate is as follows:

$$\text{Risk free rate} = (1.02)\frac{(1.15)}{(1.015)} - 1 = 15.57\%$$

Country Risk Premium

(A Detailed handbook)

CA Shubham Pai

What is the country risk premium(CRP)?

CRP refers to the additional return or premium that investors demand in order to compensate for the higher risks associated with investing in a particular country compared to investing in a relatively risk-free asset such as a U.S. Treasury bond.

CRP reflects the political, economic, and financial risks associated with investing in a specific country.

These risks can include factors such as political instability, government policies, currency risk, inflation, regulatory environment, legal system, and overall macroeconomic conditions.

Methods to compute CRP

Sovereign $ Bond

CDS spreads

Sovereign-rating based spread

1. Sovereign $ Bond

Find bonds denominated in US dollars, issued by the emerging country for which you are computing the CRP

CRP =

Emerging Govt Bond Rate (in US $) *minus*

US Treasury Bond rate with the same maturity.

Eg. Suppose you are calculating CRP for Russia so find the US-denominated bond rate in Russia suppose it is 10% and the US treasury bond rate is 2%.

So CRP in this case will be 10%-2% = 8%

Country	$ Bond Rate	Riskfree Rate	Default Spread
	$ Bonds		
Peru	5.66%	3.88%	1.78%
Brazil	6.15%	3.88%	2.27%
Colombia	5.75%	3.88%	1.87%
Poland	4.68%	3.88%	0.80%
Turkey	6.83%	3.88%	2.95%
Mexico	4.95%	3.88%	1.07%
Russia	10.38%	3.88%	6.50%
	Euro Bonds		
Bulgaria	3.50%	2.26%	1.24%

Source : Damodaran

2. CDS Spreads

Obtain the traded value for a sovereign Credit Default Swap (CDS) for the emerging government.

CRP = Sovereign CDS spread

Country	CDS on 1/23	CDS net of US	Country	CDS on 1/23	CDS net of US	Country	CDS on 1/23	CDS net of US
Abu Dhabi	0.78%	0.46%	Greece	1.97%	1.65%	Pakistan	NA	NA
Algeria	1.73%	1.41%	Guatamela	2.28%	1.96%	Panama	1.79%	1.47%
Angola	6.55%	6.23%	Hong Kong	0.71%	0.39%	Peru	1.94%	1.62%
Argentina	NA	NA	Hungary	2.43%	2.11%	Philippines	1.64%	1.32%
Australia	0.34%	0.02%	Iceland	0.73%	0.41%	Poland	1.45%	1.13%
Austria	0.24%	0.00%	India	1.67%	1.35%	Portugal	0.81%	0.49%
Bahrain	2.78%	2.46%	Indonesia	1.75%	1.43%	Qatar	0.79%	0.47%
Belgium	0.37%	0.05%	Iraq	4.69%	4.37%	Romania	3.17%	2.85%
Brazil	3.52%	3.20%	Ireland	0.43%	0.11%	Russia	NA	NA
Bulgaria	1.50%	1.18%	Israel	0.67%	0.35%	Rwanda	5.42%	5.10%
Cameroon	6.68%	6.36%	Italy	1.84%	1.52%	Saudi Arabia	0.96%	0.64%
Canada	0.36%	0.04%	Japan	0.31%	0.00%	Senegal	5.39%	5.07%
Chile	1.76%	1.44%	Kazakhstan	2.70%	2.38%	Serbia	2.93%	2.61%
China	1.11%	0.79%	Kenya	7.60%	7.28%	Slovakia	0.75%	0.43%
Colombia	3.65%	3.33%	Korea	0.68%	0.36%	Slovenia	1.00%	0.68%
Costa Rica	4.35%	4.03%	Kuwait	0.79%	0.47%	South Africa	3.51%	3.19%
Croatia	1.34%	1.02%	Latvia	1.37%	1.05%	Spain	0.82%	0.50%
Cyprus	1.33%	1.01%	Lebanon	NA	NA	Sri Lanka	NA	NA
Czech Republic	0.62%	0.30%	Lithuania	1.45%	1.13%	Sweden	0.26%	0.00%
Denmark	0.23%	0.00%	Malaysia	1.24%	0.92%	Switzerland	0.17%	0.00%
Dubai	1.26%	0.94%	Mexico	2.11%	1.79%	Thailand	0.87%	0.55%
Ecuador	16.93%	16.61%	Morocco	2.53%	2.21%	Tunisia	8.69%	8.37%
Egypt	8.01%	7.69%	Namibia	3.84%	3.52%	Turkey	5.30%	4.98%
El Salvador	27.46%	27.14%	Netherlands	0.26%	0.00%	Ukraine	NA	NA
Estonia	1.76%	1.44%	New Zealand	0.39%	0.07%	United Kingd	0.36%	0.04%
Ethiopia	28.33%	28.01%	Nicaragua	6.27%	5.95%	United States	0.32%	0.00%
Finland	0.34%	0.02%	Nigeria	8.52%	8.20%	Uruguay	1.43%	1.11%
France	0.42%	0.10%	Norway	0.28%	0.00%	Venezuela	NA	NA
Germany	0.28%	0.00%	Oman	2.37%	2.05%	Vietnam	2.07%	1.75%

https://pages.stern.nyu.edu/~adamodar/

3. Sovereign-rating based spread:

For countries that **don't issue dollar-denominated bonds or have a CDS spread**, you have to use the average spread for other countries with the same **sovereign rating**.

S&P Sovereign Rating	Moody's Sovereign Rating	Default Spread
AAA	Aaa	0.00%
AA+	Aa1	0.49%
AA	Aa2	0.60%
AA-	Aa3	0.73%
A+	A1	0.86%
A	A2	1.04%
A-	A3	1.47%
BBB+	Baa1	1.96%
BBB	Baa2	2.33%
BBB-	Baa3	2.69%
BB+	Ba1	3.06%
BB	Ba2	3.68%
BB	Ba3	4.40%
B+	B1	5.51%
B	B2	6.73%
B-	B3	7.95%
CCC+	Caa1	9.17%
CCC	Caa2	11.02%
CCC-	Caa3	12.24%
CC+	Ca1	13.75%
CC	Ca2	14.68%
CC-	Ca3	15.25%
C+	C1	16.25%
C	C2	17.50%
C-	C3	19.00%

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Beta can be defined as a **measure of systematic risk** in the context of investments.

Systematic risk refers to the **overall risk inherent in the entire market or a specific market segment.**

It is the risk that **cannot be diversified away** through portfolio diversification.

Beta quantifies the relationship between the price movements of an individual stock or investment portfolio and the overall market.

It measures how much the investment's price tends to move in response to changes in the market.

Therefore, beta is considered a measure of the investment's sensitivity to systematic or market risk.

Interpretation

A beta value greater than 1 indicates that the investment tends to be more volatile than the market, and it is expected to experience larger price swings in response to market movements. This implies higher systematic risk.

Conversely, a beta less than 1 suggests lower volatility compared to the market, indicating lower systematic risk.

Steps for Computation - Bottom-Up Beta

The bottom-up beta approach, popularized by finance professor Aswath Damodaran, involves estimating beta by analyzing the betas of comparable publicly traded companies.

Here are the steps to compute the bottom-up beta using Damodaran's methodology:
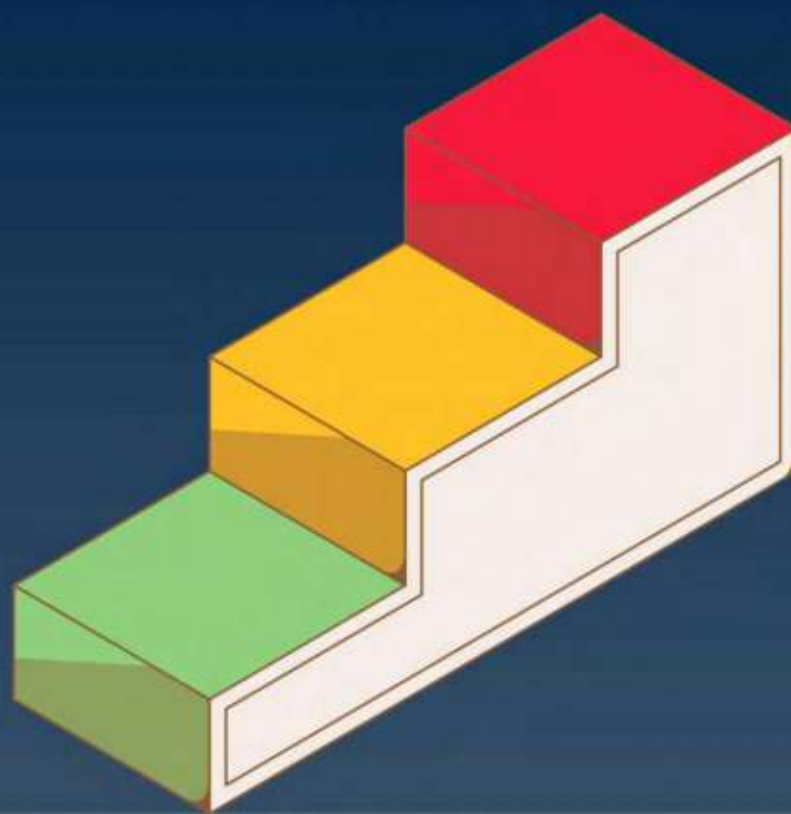
Step 1: Identify Comparable Companies

Select a group of **publicly traded companies** that are **similar** to the private company in terms of industry, size, business operations, and risk factors. These companies should have available beta values.

Step 2: Collect Beta Values

Obtain the beta values of comparable companies from financial data sources or other reliable databases.

The beta values can typically be found on financial websites or financial databases.

Step 3: Adjust Beta for Financial Leverage

Beta represents the equity risk of a company.

However, the beta values obtained from the comparable companies reflect both the equity risk and the financial risk (debt) of those companies.

Since private companies usually have different capital structures, it is necessary to remove the effect of financial leverage from the beta values of comparable companies.

To do this, you need to estimate the **debt-to-equity ratio** for each comparable company and calculate the unlevered beta.

Unlevered Beta = Levered Beta / (1 + (1 - Tax Rate) * Debt-to-Equity Ratio)

Step 4: Calculate the Weighted Average Beta

Assign weights to the unlevered beta of each comparable company **based on their similarity and relevance to the private company.**

The weights can be based on factors such as market capitalization, revenue, or other **meaningful criteria.**

Weighted Average Beta = Σ (Weight * Unlevered Beta of Comparable Company)

Practically you simply take the average or median of the comparable set.

Step 5: Relevering of Beta

Compute levered beta (equity beta) for your firm, using the market debt to equity ratio for your firm

Levered bottom up beta = Unlevered beta * (1 + (1-Tax Rate) * Debt-to-Equity Ratio)

β

What is Company Specific Risk Premium

(A Detailed overview)

CA Shubham Pai

Company Specific Risk Premium (CSRP)

Company specific risk premium (CSRP) is an **additional rate of return that investors demand as compensation for the unique risks** associated with investing in a particular company's stock or securities.

It is a component of the cost of equity calculation and is used in the context of the **Capital Asset Pricing Model (CAPM)**

Let's analyze the factors considered for its determination

1. Business Risk

Evaluate the **nature of the company's core operations, industry stability, and competitive position**. Companies operating in volatile or rapidly changing industries may have higher business risk.

2. Financial Risk

Assess the company's **capital structure and overall financial health**. Highly leveraged companies or those with weak financials may have a higher risk premium.

3.Management Quality

Evaluate the **competency and track record** of the company's management team. Effective and experienced leadership can reduce certain risks associated with a company.

4. Market Position

Examine the company's **market share and its ability to maintain or grow** its position in the market. Dominant players may have lower risk premiums.

5. Geographic Diversity

Companies with operations in multiple regions may have lower risk due to reduced exposure to regional economic fluctuations.

6. Regulatory and Political Environment

Companies operating in regions with stable political environments and favorable regulatory conditions generally have lower risk premiums.

7. Earnings Stability

Companies with **consistent and predictable earnings** may have lower risk premiums compared to those with volatile earnings.

8. Legal and Litigation Risks

Analyze any **ongoing or potential legal issues** that could impact the company's financial performance and reputation.

9. Competitive Advantage

Assess whether the company possesses **sustainable competitive advantages**, such as strong branding, patents, or proprietary technology

This is not a complete list there might be some other factors as well

Equity Risk Premium

CA Shubham Pai

Introduction

The Equity Risk Premium is the reward we get to invest in the equity market of a country in general

It is country specific and not company specific.

The Equity Risk Premium is rooted in the idea that investors require compensation for taking on the higher uncertainty and volatility associated with equity investments compared to safer alternatives.

How to determine country for ERP

You need to analyze from where the risk of the company is getting originated.

Check for below 2 :

1) Location Constraint or

2) Operational Constraints

Location Constraint:

A location constraint refers to a limitation or restriction placed on the geographical positioning or placement of certain activities, assets, projects, or operations.

This constraint arises when there are specific requirements, conditions, or factors that dictate where something can be situated.

Operational Constraint

Operational constraints can arise from factors such as resource limitations, technological capabilities, regulatory requirements, time constraints, and organizational policies.

These constraints can impact how an entity operates and makes decisions.

Example

Suppose an Indian software company generates 95% of its revenue from the US.

Location is not a constraint since they can move their operations from India to the US within a few days if required.

Operation is a constraint and since major operations are in the US, we should use ERP of the US

Approaches to compute ERP

1. Survey Approach
2. Historical ERP
   a. Artihmatcal mean
   b. Geometric mean
3. Implied ERP from current market data
4. Countries' Default risk premium to estimate ERP
   (US ERP + default spread)

Capital Asset Pricing Model (CAPM)

CA Shubham Pai

Summary

Cost of Equity

Risk free rate

+

ERP

×

Beta

CAPM

The capital asset pricing model - or CAPM - is a financial model that calculates the **expected rate of return for an asset or investment.**

CAPM does this by using the expected return on both the **market and a risk-free asset**, and the asset's correlation or sensitivity to the **market (beta).**

Here's how you can compute the cost of equity using CAPM:

Cost of Equity

The cost of equity represents the **return required by investors in order to hold shares of a company's stock.**

It is an important metric used in financial valuation and investment analysis.

There are various methods to compute the cost of equity, but one commonly used approach is the **Capital Asset Pricing Model (CAPM).**

Step 1 : Risk-free rate

Determine the Risk-Free Rate: Start by identifying the risk-free rate, which represents the return an investor would expect from a risk-free investment such as government bonds. This rate serves as a baseline return for the overall market.

You can obtain this rate from reliable sources like government treasury yields.

Source: www.ccilindia.com

RISK
FREE

>

Step 2 : Equity Risk Premium

The equity risk premium reflects the additional return that investors demand for investing in equities instead of risk-free investments.

It compensates for the higher risk associated with owning stocks.

The equity risk premium can vary based on market conditions, country-specific factors, and other considerations.

Source: https://pages.stern.nyu.edu/~adamodar

Step 3 : Beta

Beta measures the **sensitivity of a stock's returns to the overall market movements.**

It indicates how much the stock's price tends to move in relation to the broader market.

Beta = Covariance (Stock Returns, Market Returns) / Variance (Market Returns)

Source: Bloomberg or Yahoo Finance

β

Step 4 : Calculate the Cost of Equity

Once you have the risk-free rate, the equity risk premium, and the beta of the stock, you can use the CAPM formula to calculate the cost of equity:

Cost of Equity =
Risk-Free Rate + (Beta × Equity Risk Premium)

Assumptions of CAPM World

1. Investors are rational

2. Uniform single-period investment horizon

3. Investors have homogenous expectations

4. All assets are freely traded

5. No taxes, no transaction costs, securities are fully divisible

6. There is an unlimited lending and borrowing opportunity at Rf

Cost of Debt (Kd)

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What is Debt?

All Interest bearing instruments with below characteristics

Contractual Commitment

Interest is tax deductible

There is an damage of default

What is Cost of Debt (Kd)?

Rate at which you can borrow as on today. Kd is sensitive to below

Current interest rates and Rf

Default risk of company

Tax advantage over debt

DEBT

Approaches to Compute Cost of Debt

1) Traded Debt

Compute Yield to Maturity

2) Rated Debt

Estimate company default spread basis the rating (Lookup table from Damodaran Sir website)

US Rf + Country risk premium + Company default spread

3) Neither Traded nor Rated Debt

Compute synthetic rating of the firm (for eg. EBIT / Interest expense i.e Interest coverage ratio)
or
Total intrest expense as per P&L / Debt outstanding.
or
Incremental borrowing rate as per management

Kd (1 - Tax rate)

Tax rate considered should be based on Marginal tax rate i.e Notified by Government
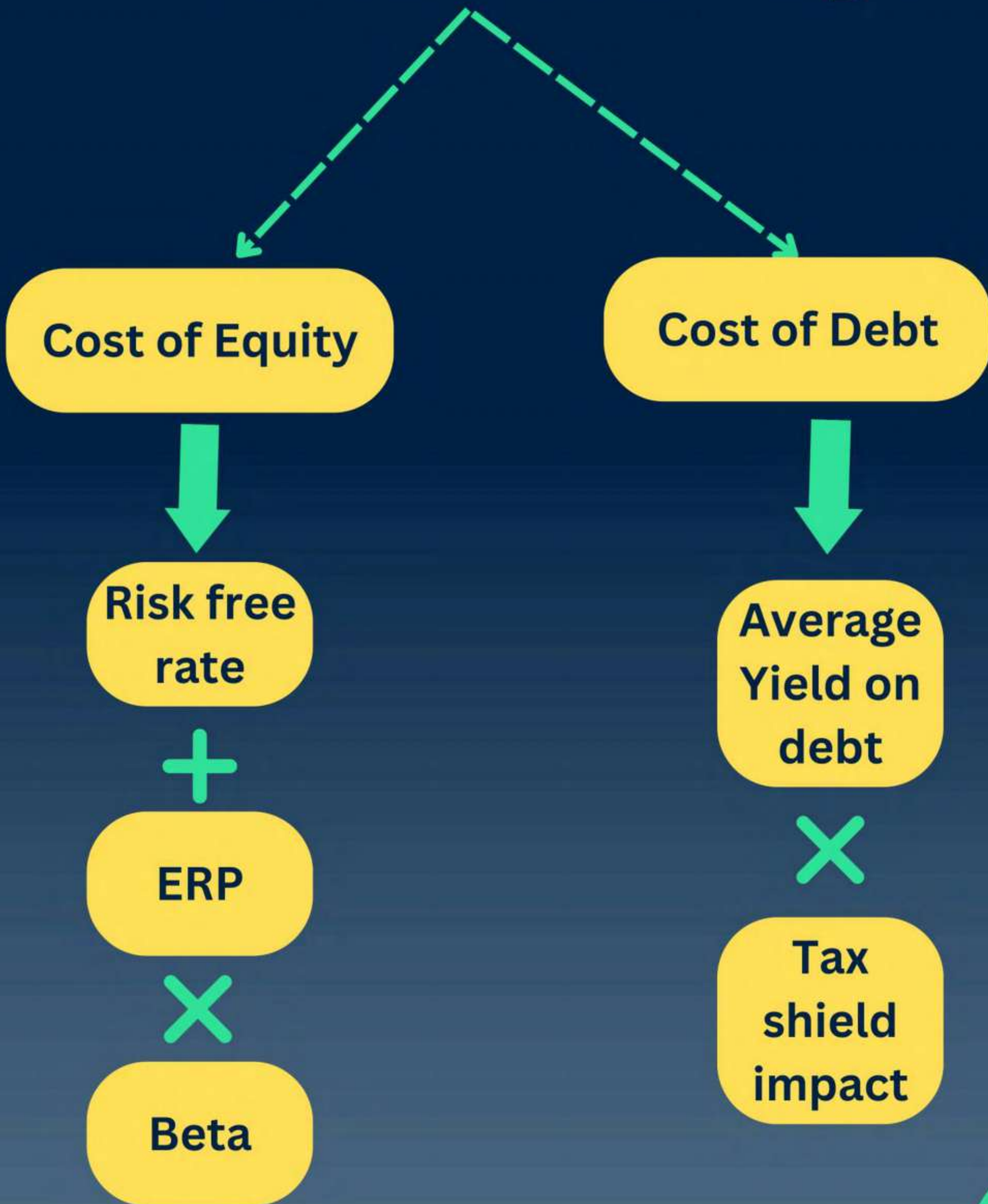
Kd (1 - t) will not make sense in loss-making period.

Computation of WACC

Weighted Average Cost of Capital

CA Shubham Pai

Summary

Cost of Equity

Cost of Debt

Risk free rate

$+$

ERP

$\times$

Beta

Average Yield on debt

$\times$

Tax shield impact

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You can obtain this rate from reliable sources like **government treasury yields.**

Source: www.ccilindia.com

Step 2 : Equity Risk Premium

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The equity risk premium can vary based on market conditions, country-specific factors, and other considerations.

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Cost of Debt

The cost of debt represents the required return for a company's debt holders.

It is the interest rate or yields the company must pay on its debt to compensate lenders for the risk associated with lending money.

Cost of Debt =
Average Yield on debt × (1 - Tax rate)

Source: www.fimmda.org

WACC

To compute the Weighted Average Cost of Capital (WACC), you need to consider the cost of each component of a company's capital structure, weighted by their respective proportions.

Here's how you can calculate the WACC:

WACC = (Proportion of Debt × Cost of Debt) + (Proportion of Equity × Cost of Equity)

Growth Rate

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Growth Rate

Below are methods to estimate Growth Rate : -

Historical Growth Rate

Analysts Estimates

Fundamental Growth

Approaches to Compute Growth Rate

1) Historical Growth

Compute Arithmetical Mean or Grometric Mean based on past

2) Analyst's Estimates

Refer Analyst's report and conclude on median growth rate estimated

Limitations :-

1. Tunnel Vision
2. Too much dependency on management info.
3. Lemming theory

3) Fundamental Growth

If growth is internally financed and current ROE is expected to be maintained in future

Growth rate (g) = Retention ratio X ROE

Long Term Growth Rate

LTGR is an important input in computation of Terminal Value

You can look into long term GDP growth rate estimate for the country where operations are located

(Source:https://www.imf.org/external/datamapper/datasets/WEO)

Terminal Value Computation

(Detailed Overview)

CA Shubham Pai

What is Terminal Value ("TV")?

Terminal value (TV) refers to the worth of an asset, business, or project that extends beyond the projected timeframe in which we can estimate future cash flows.

It assumes that the business will continue growing indefinitely at a consistent rate after the forecast period ends.

The terminal value typically represents a significant portion of the overall assessed value.

DCF and TV

The discounted cash flow (DCF) method consists of two primary components: the forecast period and the terminal value.

The forecast period typically spans around three to five years since projections tend to become less accurate beyond this timeframe.

This is where the calculation of the terminal value becomes crucial.

Methods for computation of TV

Gordon Growth Model

H-Model

Exit Multiple

Gordon Growth Model

Formula :

$$[FCF \times (1 + g)] / (d - g)$$

FCF = free cash flow for the last forecast period
g = terminal growth rate
d = discount rate (WACC)

Here, investors can assume that cash flows will grow at a stable rate forever, starting at some point in the future.

To calculate the terminal value, you divide the last cash flow forecast * (1+g) by the difference between the discount rate and the terminal growth rate.

H - Model

Formula

$$\text{Stock Value} = \frac{D_0(1 + g_2)}{(r - g_2)} + \frac{D_0 H(g_1 - g_2)}{(r - g_2)}$$

$$= \frac{D_0(1 + g_2) + D_0 H(g_1 - g_2)}{(r - g_2)}$$

Where:

- D_0 = The most recent dividend payment

- g_1 = The initial high growth rate

- g_2 = The terminal growth rate

- r = The discount rate

- H = The half-life of the high growth period

Source : CFI

The H-model formula comprises **two components.**

The first component focuses on the value of the stock considering the **long-term growth rate, disregarding the initial high growth period.**

The second component of the equation incorporates the **value derived from the high growth rate period.**

By combining these two components, the H-model provides a **comprehensive assessment of the Terminal value.**

Exit Multiple

Exit multiples estimate a fair price by multiplying financial metrics, such as sales, profits, or EBITDA by a factor that is common for similar firms that were recently acquired.

The terminal value formula using the exit multiple methods is the most recent metric (i.e., sales, EBITDA, etc.) multiplied by the decided-upon multiple (usually an average/median of recent exit multiples for other transactions)

For Eg : TV = Exit multiple (EV/Revenue multiple of recent transaction in sector) * TTM Revenue.

Handbook on Discounted Cash Flow Approach ("DCF")

(Detailed Elaboration)

CA Shubham Pai

Cash Flows

The DCF analysis begins with estimating the future cash flows generated by the investment or business.

Cash flows can be either free cash flows to the firm (FCFF) or free cash flows to equity (FCFE), depending on the perspective of the analysis.

What is FCFF?

FCFF represents the cash flow generated by a company that is available to all providers of capital, including both equity and debt holders.

FCFF is used to assess a company's ability to generate cash flows from its core operations and its capacity to meet financial obligations, invest in growth, and distribute cash to investors.

What is FCFE?

FCFE represents the cash flow available to the equity holders or shareholders of a company.

FCFE is commonly used to estimate the cash flow available for distribution to equity investors through dividends, share buybacks, or reinvestment in the business. It is particularly useful for valuing equity investments.

Forecast Period

The forecast period is the time frame over which cash flows are projected.

It typically includes a period of explicit projections, usually 5-10 years, where cash flows are estimated with a reasonable level of certainty
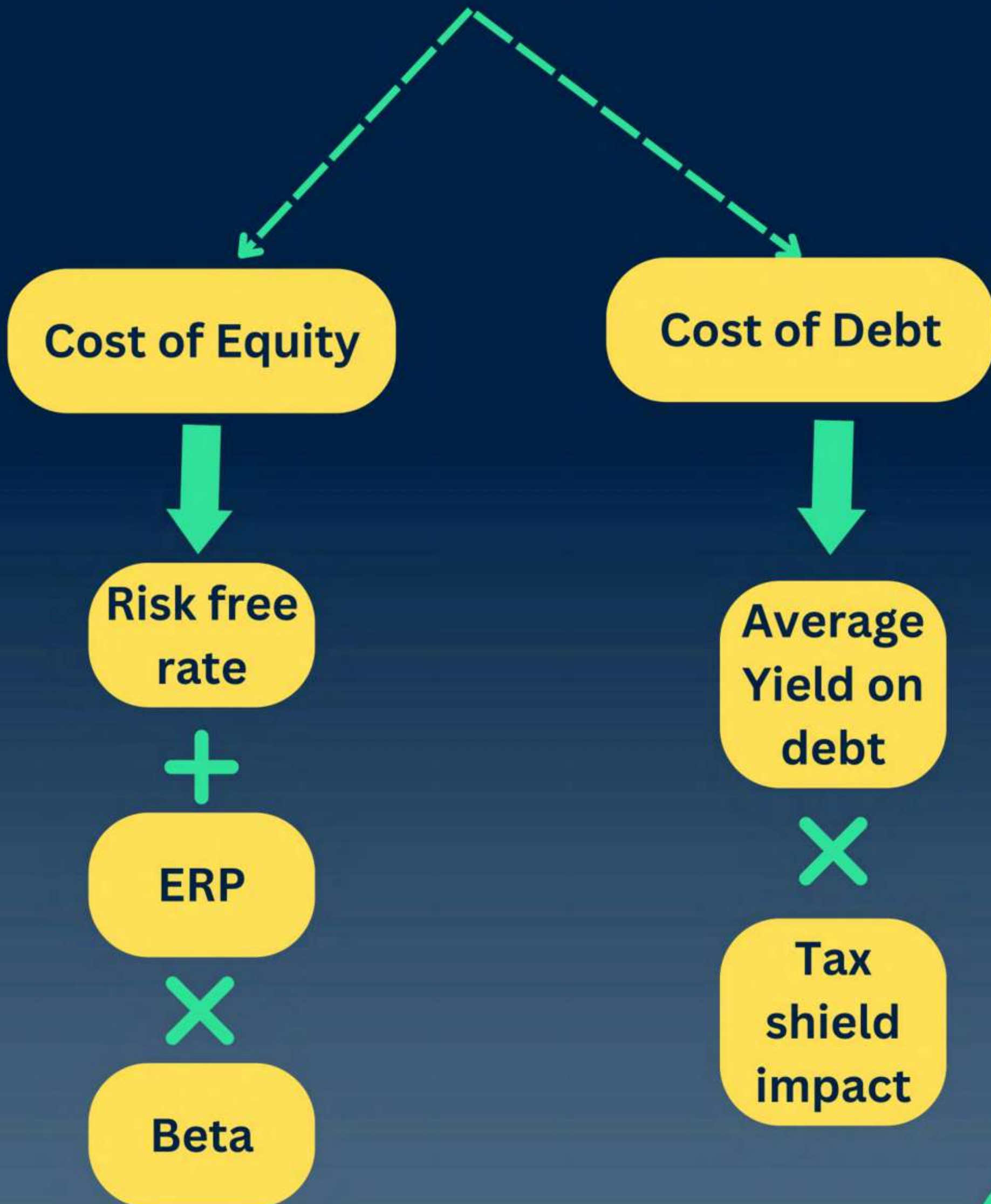
Discount Rate

The discount rate, often referred to as the required rate of return or the cost of capital, is the rate used to discount future cash flows to their present value.

It reflects the time value of money and the risk associated with the investment.

The discount rate is typically determined based on the risk profile of the investment and can be calculated using various methods like the weighted average cost of capital (WACC) or the cost of equity.

WACC

Cost of Equity

Cost of Debt

Risk free rate

+

ERP

×

Beta

Average Yield on debt

×

Tax shield impact

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Source: www.fimmda.org

WACC Computation

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Here's how you can calculate the WACC:

WACC = (Proportion of Debt × Cost of Debt) + (Proportion of Equity × Cost of Equity)

Terminal Value

The terminal value represents the value of all cash flows beyond the forecast period, usually captured in perpetuity.

There are different approaches to calculating the terminal value, such as the Gordons growth method, exit multiple methods, or H-Model.

∞

Methods for computation of TV

Gordon Growth Model

H-Model

Exit Multiple

Gordon Growth Model

Formula :

$$[FCF \times (1 + g)] / (d - g)$$

FCF = free cash flow for the last forecast period

g = terminal growth rate

d = discount rate (WACC)

Here, investors can assume that cash flows will grow at a stable rate forever, starting at some point in the future.

To calculate the terminal value, you divide the last cash flow forecast * (1+g) by the difference between the discount rate and the terminal growth rate.

H - Model

Formula

$$\text{Stock Value} = \frac{D_0(1 + g_2)}{(r - g_2)} + \frac{D_0H(g_1 - g_2)}{(r - g_2)}$$

$$= \frac{D_0(1 + g_2) + D_0H(g_1 - g_2)}{(r - g_2)}$$

Where:

- D_0 = The most recent dividend payment

- g_1 = The initial high growth rate

- g_2 = The terminal growth rate

- r = The discount rate

- H = The half-life of the high growth period

Source : CFI

The H-model formula comprises **two components.**

The first component focuses on the value of the stock considering the long-term growth rate, disregarding the initial high growth period.

The second component of the equation incorporates the value derived from the high growth rate period.

By combining these two components, the H-model provides a comprehensive assessment of the Terminal value.

Exit Multiple

Exit multiples estimate a fair price by multiplying financial metrics, such as sales, profits, or EBITDA by a factor that is common for similar firms that were recently acquired.

The terminal value formula using the exit multiple methods is the most recent metric (i.e., sales, EBITDA, etc.) multiplied by the decided-upon multiple (usually an average/median of recent exit multiples for other transactions)

For Eg : TV = Exit multiple (EV/Revenue multiple of recent transaction in sector) * TTM Revenue.

Discounted Cash Flows

Once the cash flows are projected and the terminal value is calculated, they are discounted back to the present value using the discount rate.

This process adjusts future cash flows to reflect their value in today's terms

Calculation of Intrinsic Value

The final step in the DCF analysis is to sum up the present value of the projected cash flows and the terminal value.

This provides an estimate of the intrinsic value of the investment or business.

It's important to note that the DCF method involves making assumptions and estimates about future cash flows, growth rates, and discount rate, which can introduce uncertainties and potential errors in the valuation.

Sensitivity analysis is commonly used to account for these uncertainties in the DCF analysis.

Relative Valuation

(A practical demonstration)

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Relative Valuation

Relative valuation is a method used in valuations to assess the value of a company by comparing it to similar companies in the industry.

It involves analyzing key financial metrics such as the EV/EBITDA, EV/Revenue, P/BV, etc

By comparing these ratios to those of comparable companies or industries, relative valuation helps investors determine if a particular asset is overvalued, undervalued, or fairly priced.

It provides a relative benchmark for assessing the attractiveness of an investment opportunity, taking into account market conditions and industry-specific factors.

While relative valuation is a popular approach due to its simplicity and ease of implementation, it also comes with limitations, as it relies heavily on the comparability and accuracy of the chosen benchmark companies.

Step 1 : Find the comparable companies

Several factors should be considered to ensure an accurate and meaningful comparable company analysis. Here are some key factors to consider:

1. Industry and Sector
2. Size and Market Capitalization
3. Business Model and Operations
4. Growth Rates
5. Financial Metrics
6. Geographic Factors
7. Market Perception

(Practically capital IQ is used for the purpose of screening comparable companies)

Let's assume you are valuing an entity called **Greeks Limited**

You found 3 comparable companies based on the above screening criteria

1. **Alpha**
2. **Delta**
3. **Gamma**

Step 2 - Selection of Valuation multiple

Once comparable companies are defined the next critical step is to find out the common metric for valuation like EV/Revenue, EV/EBITDA, EV/capacity, etc

Judgment is required with a detailed analysis of the business and financials for above

Suppose Greeks Limited is a startup with sustainable revenue and is currently EBITDA negative. So we conclude to take EV/revenue multiple

Step 3 : Compute the multiples of comparable companies

Part 1 : Enterprise Value computation

Basic computation :

Market Capitalisation
Add : Debt & debt like items
Less: Cash and cash equivalents
Less: Minority Interest
Less: Investments
Enterprise Value

Part 2: Let's compute multiples of comparable companies.

Average is taken since only 3 comparables are there. in case of more comparables median can be considered

Comparables	EV	Revenue	EV/Revenue
Alpha	500	100	5.0
Delta	460	90	5.1
Gamma	320	80	4.0
		Average	4.7

Step 4 : Relative valuation computation

Suppose considering factors such as **financials, size of comparables, etc** we arrive at a **discount of 20%** on selected multiple.

Basis below we conclude at an Equity value

Selected Multiple	4.7x
Discount %	20%
Concluded multiples	**3.8x**
TTM Revenue	30.0
EV	**112.9**
Less : Debt & debt like items	50.0
Add : Cash and cash equivalents	10.0
Equity Value of Geeks limited	**72.9**

Types of Valuation Multiples

(Summary of commonly used Valuation multiples)

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EV / Revenue

EV / EBITDA

EV / EBIT

Summary of commonly used Valuation multiples

P/B ratio

P/E ratio

EV / Revenue

EV/Revenue compares a company's enterprise value (EV) to its total revenue.

The enterprise value is calculated by adding the company's market capitalization to its total debt and subtracting cash and cash equivalents.

This ratio helps investors assess the valuation of a company based on its sales performance.

EV / EBITDA

The EV/EBITDA ratio measures the value of a company relative to its EBITDA (earnings before interest, taxes, depreciation, and amortization).

It is often used in mergers and acquisitions (M&A) as it provides a more comprehensive picture of a company's value, accounting for its debt and operating profitability.

This multiple is particularly useful when analyzing companies with different capital structures, tax rates, and depreciation policies.

EV / EBIT

EBIT represents a company's operating profit before deducting interest expenses and taxes.

EV/EBIT is a useful multiple when assessing the operating profitability of a company, as it provides a measure of its earnings power irrespective of its capital structure and tax considerations.

P/B Ratio

The P/B ratio compares a company's **market value** (or stock price) to its **book value** (total assets minus intangible assets and liabilities).

It is commonly used in the analysis of **financial and banking sectors**, as it provides insights into a company's net asset value.

P/E Ratio

The P/E ratio is often interpreted as an indicator of the **market's perception of a company's growth potential, risk profile, and relative value.**

A **high P/E** ratio implies that investors are willing to pay a higher price for each unit of earnings, indicating higher growth expectations or confidence in the company's prospects.

Conversely, a **low P/E** ratio suggests lower growth expectations or potential undervaluation.

Pre-Money & Post Money Valuation?

(with example)

FUNDING

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Background

Pre-money and post-money valuation are terms commonly used in finance, especially in the context of startups and PE/VC fundings.

They refer to the valuation of a company before and after an investment round, respectively.

Pre-money valuation

Pre-money valuation is the estimated value of a company or startup immediately **before it receives an investment or funding**

Post-money valuation

Post-money valuation is the estimated value of a company or startup immediately **after it has received an investment or funding.**

Example

Company A has **4 million shares issued** to existing investors and promoters

now they are **issuing 1 million shares** to a new investor at an **issue price of INR 500 per share**

Total Investment = 1Mn* 500 = **INR 500 Mn**

Example

Valuation of firm post the investment will be =

Total outstanding shares * latest issue price

5 Mn * 500 = **INR 2500 Mn**

This is post-money valuation

Example

Pre-money valuation =

Post money valuation - Capital invested

= INR 2500 Mn - INR 500 Mn

Pre-money Valuation = INR 2000 Mn

Understanding pre-money and post-money valuations is crucial for both entrepreneurs and investors during the funding process, as it helps determine the dilution of ownership and the percentage of equity stakeholders will hold after the investment round.

Purchase Price Allocation ("PPA")

(An Overview)

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What is meant by PPA?

Purchase price allocation is a crucial practice in acquisition accounting, where the acquiring company assigns the purchase price to specific assets and liabilities of the target company that was acquired.

This process occurs after the completion of a merger or acquisition and is essential for accurate accounting reporting.

When is PPA required to be done?

Under the currently accepted accounting standards, including the International Financial Reporting Standards (IFRS), the practice of purchase price allocation is mandatory for any type of business combination deal Including both mergers and acquisitions.

It is important to note that previous accounting standards only required purchase price allocation in acquisition deals, but the current standards now encompass all types of business combinations.
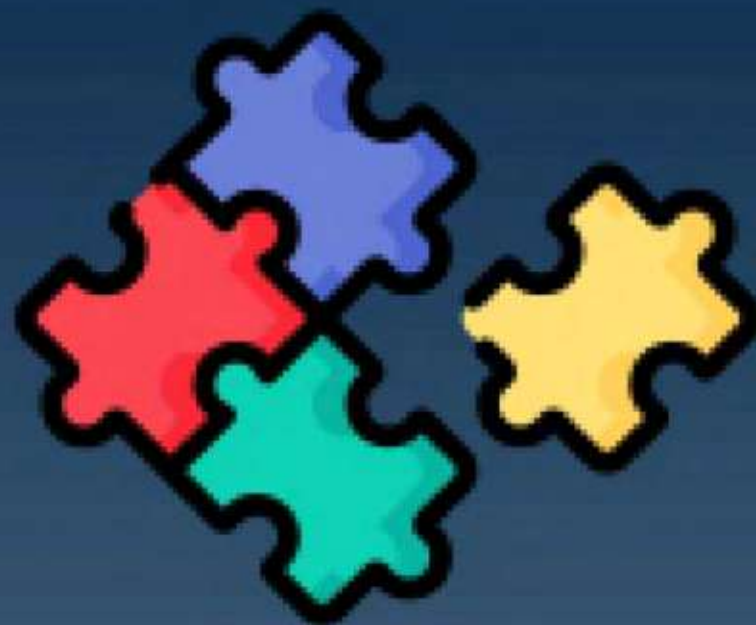
Components of PPA

1. Net identifiable assets

2. Write-up

3. Goodwill

1. Net identifiable assets

Net identifiable assets are the total value of assets belonging to an acquired company, minus the total amount of its liabilities. It is important to note that "identifiable assets" are assets that have a determinable value at a specific point in time, and their benefits can be recognized and reasonably measured.

In the context of acquisition accounting, the net identifiable assets represent the residual value after deducting the liabilities from the assets of the acquired company.

It is important to understand that identifiable assets may include both tangible and intangible assets.

2. Write-up

A write-up refers to an **adjustment made to increase the book value of an asset when its carrying value is lower than its fair market value.**

This adjustment is typically determined by **an independent business valuation specialist** who assesses the fair market value of the assets belonging to a target company.

The purpose of the write-up is to **align the book value** of the asset with its estimated fair market value.
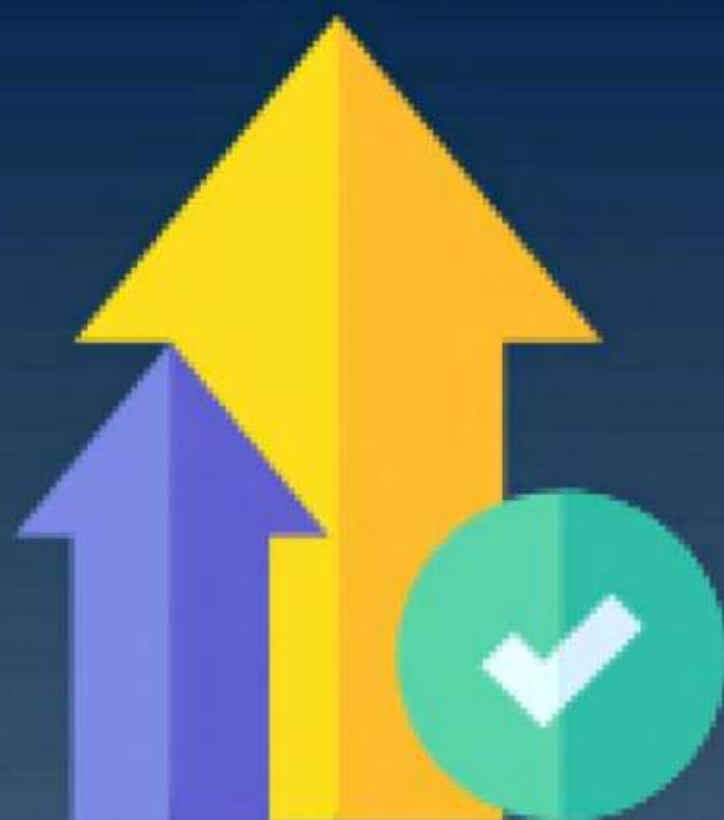
3. Goodwill

Goodwill refers to the surplus amount paid by the acquiring company beyond the net value of the acquired company's assets minus its liabilities.

It is computed as the difference between the purchase price and the aggregate fair market value of the assets and liabilities of the acquired company.
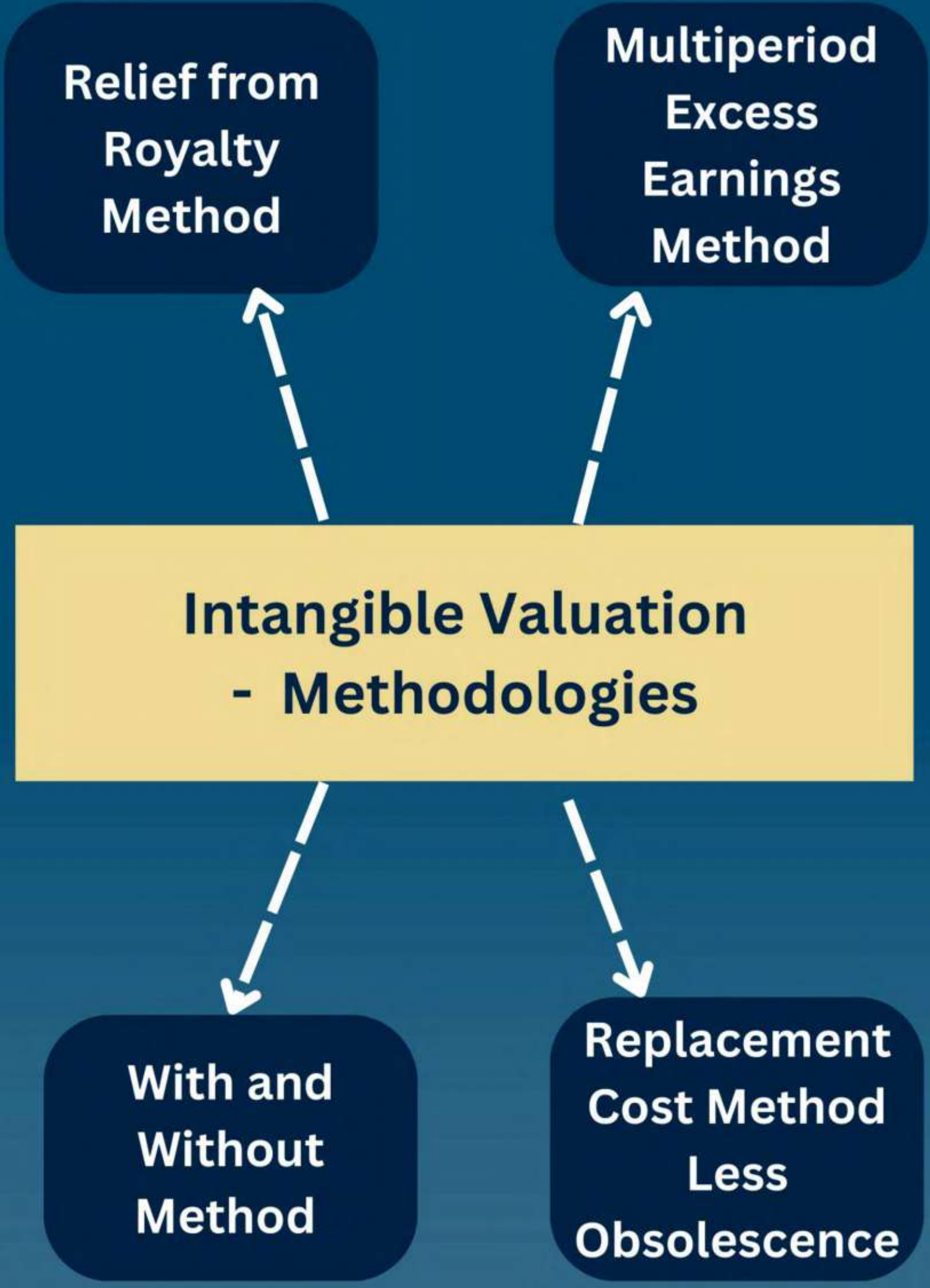
Goodwill emerges when the acquisition cost surpasses the identifiable net assets.
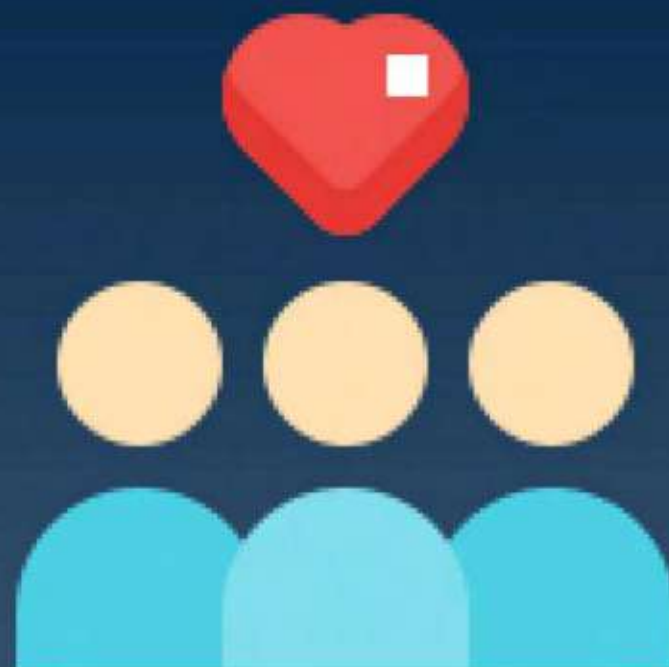
Intangibles Valuation Methods

(Summary of commonly used Valuation methods)

Relief from Royalty Method (RFR)

The Relief from Royalty Method is a valuation approach that estimates the value of an intangible asset by considering the money saved from not having to pay royalties if the asset is owned rather than licensed.

It assumes that owning the asset allows the entity to use it without incurring royalty expenses.

This method is commonly used for valuing assets like domain names, trademarks, licensed computer software, and ongoing research and development projects.

Multiperiod Excess Earnings Method (MEEM)

The MEEM is a valuation technique that is based on discounted cash flow analysis.

The MEEM focuses on the specific cash flows associated with a single intangible asset.

It isolates these cash flows and discounts them to their present value to determine the fair value of the asset.

The MEEM is typically used when a single asset is the primary factor driving the value of a company, and when it is possible to separate the cash flows generated by that asset from the overall cash flows of the company. Commonly used for valuation of customer relationships

With and Without Method (WWM)

The With and Without Method (WWM) is a way to figure out how much an intangible asset is worth.

It does this by comparing two different cash flow models. One model represents the business with the intangible asset, and the other model represents the business without it.

By looking at the difference between these two models, we can estimate the value of the intangible asset.

The WWM is commonly used when valuing non-compete agreements.

Replacement Cost Method Less Obsolescence

In this method we assess the replacement cost for an intangible asset, that is "the cost to construct, at current prices as of the date of the analysis, an intangible asset with the equivalent utility to the subject intangible"

The estimated replacement cost is then adjusted to account for any obsolescence related to the asset.

COST

>>> >>>

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