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# Valuation of (Tech) Startups and high growth private companies

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## Business Valuation purposes

Valuation is done throughout the life cycle of an entity:

### Early stage:

Angel funding / private placement / fund raising

### Mature Stage:

Restructuring (e.g. M&As, CDR)

Compliance – Income Tax; Financial Reporting

IPOs, Bank funding

Brand, Goodwill

### Decline stage:

Winding up Insolvency

# Approaches to Valuation

## Market Approach

- Market price Method
- Comparable Companies Multiple (CCM) Method
- Comparable Transactions Multiple (CTM) Method

## Income Approach

- Discounted Cash Flow Method (DCF)
- Income Capitalisation Approach

## Cost Approach

- Replacement Cost Method
- Reproduction Cost Method
- (Adjusted) Net Asset Value Approach

Early stage  
companies

# Early Stage Companies

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- Net Asset Value Method
- Comparable Companies Multiple Method
- Comparable Transactions Method
- Venture Capital Method
- Discounted Cash Flow Method

# What's a Start-up

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An entity shall be considered as a Startup:

- i. Upto a period of 10 years from the date of incorporation/registration, if it is incorporated as a private limited company or registered as a partnership firm or a limited liability partnership in India. In the case of Startups in the biotechnology sector, the period shall be upto 10 years from the date of its incorporation/ registration.
- ii. Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded Rs. 100 crore
- iii. Entity is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.

Provided that an entity formed by splitting up or reconstruction of an existing business shall not be considered a 'Startup'.

Ministry of commerce and industry (department of industrial policy and promotion)

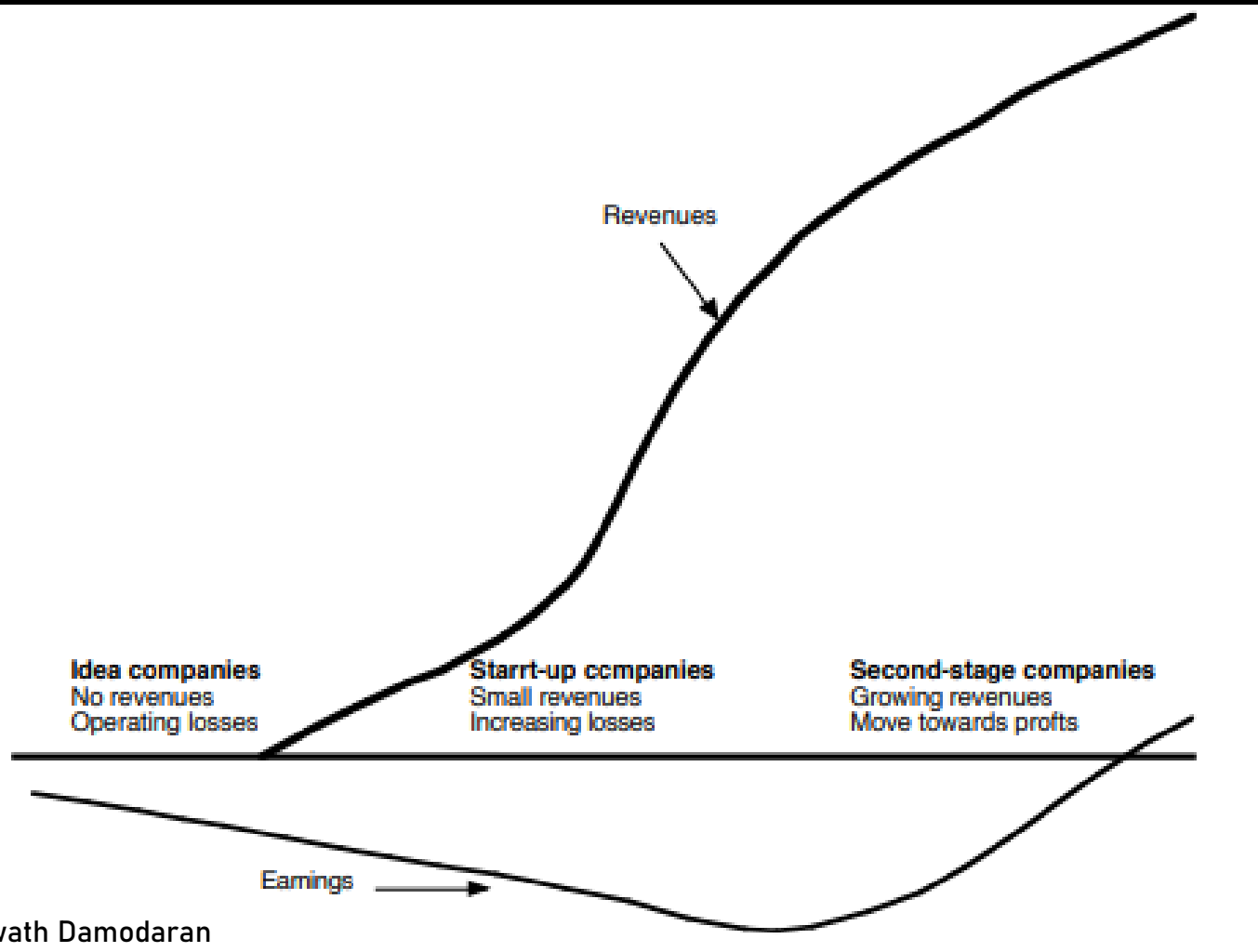
# Valuation of Start-ups

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The process of valuing private companies is not different from the process of valuing public companies.

- Estimate cash flows
- Attach a discount rate based upon the riskiness of the cash flows and
- Compute a present value.

# So what's different?



Source: Prof Aswath Damodaran



# So what's different?

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Some of the standard problems while valuing private companies are:

- There is no market value for either debt or equity.
- There may not be enough comparable companies which could be representative of the value of the company being valued.
- The financial statements for private firms are likely to:
  - go back fewer years
  - have less detail and
  - may even be less transparent.
- Private company valuation may require the valuation of key managerial person (usually the owner/promoter)

# Venture Capital Method of Valuation

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Profits of a company are forecast in a future year, when the company can be expected to go public

The profits are multiplied with the P/E multiple of a comparable publicly traded company to arrive at the value of the company.

This is called the Exit Value or the Terminal Value as this is the time when the venture capitalist would typically exit the investment.

This value is then discounted back to present using a 'Target Rate of Return' which is a justifiable discount rate for the venture capitalist based on the risk they are taking

On the flip side, it's a shortcut way of valuing a company and may not uncover **Real Value**

# Venture Capital Method of Valuation

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## Example:

A young EdTech company Om Ltd is expected to go public in 10 years from now. The valuer expects that the net profits of the company 10 years from now will be INR 95 crores.

Average PE Multiple of publicly traded EdTech companies is 20. Om Ltd is evaluating fund raising from investors. Investors are expecting 45 percent from the investment until the company goes public.

[Note: VCs expected returns can range from 65-70% returns for an early stage start-up to 25-30% return for a mature start-up looking for an IPO]

# Venture Capital Method of Valuation

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## Example:

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## Solution:

**Exit Value =  $95 \times 20 = \text{INR } 1900 \text{ Crore}$**

**Value of the company today =  $1900 / 1.45^{10} = \text{INR } 46.25 \text{ Cr}$**

# Comparable Companies Multiple Method

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Valuation of Flipkart may be done on the basis of its listed comparable Amazon:

Inputs:

- Amazon's Market Capitalisation
- Number of users on Amazon
- Number of users on Flipkart

Amazon's Value per user = Amazon's Market Cap / No. of users on Amazon

**Flipkart Value (base point) = Number of users on Flipkart x Value per user**

Possible adjustments include:

- Less: Discount for lack of Marketability [DLOM]
- Less: Amazon's global diversity
- Less: Product diversification
- Adjustment for Currency differences
- Adjustment for Country specific factors [US Growth vs India growth]

# Valuing using Operating Value Drivers

## Valuing Flipkart

Amazon = Market Capitalisation

Number of Users on Amazon.

Value Driver: Value per user (ValuePU) = Market Cap / No. of users.

**Flipkart Value = Number of users (given by Flipkart) x ValuePU**

Adjustment for:

- Marketability [Listed vs Unlisted]
- Country specific growth factors – US Growth vs India growth
- Global presence
- Product diversification
- Currency differences

# Valuing using Operating Value Drivers

Year 2014, Valuation of a Text Messaging App ChatApp with 1.6 million users. The company does not report any revenues.

Value as per Comparable Transactions Method	AMOUNT
Enterprise Value of WhatsApp (USD) as part of acquisition	19,000,000,000
Daily Active Users of WhatsApp	450,000,000
Value per Daily Active User (USD)	42.22
Exchange Rate	70.00
Value per Daily Active User (INR)	2,955.56
Less: Adjustment for Size (99.64%) <b>[Requires discussion]</b>	2,945.05
Adjusted value per Daily Active User (A)	10.51
Daily Active Users of CHATAPP (B)	16,00,000
Value of CHATAPP (A) x (B)	1,68,13,852
Value of CHATAPP (Rounded)	INR 1.68 Cr

# DCF Valuation Framework



# DCF Framework – Free Cash Flows

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The cash flow can be pre-tax or post-tax

Nominal cash flows that include expectations regarding inflation

In the same currency in which the forecast is prepared

Accounting Profit

Add: Non Cash Expenses (e.g. Depreciation and Amortisation)

Less: Outflow towards Capital Expenditure (Change in Gross Fixed Assets)

Less: Outflow towards Working Capital (Change in Non Cash Working Capital)

Equals Cash Flows

# DCF Framework – Free cash flows

Free Cash Flows represent the after tax cash generated by the business, available for all the investors (stockholders and banks), excluding any impact of the financial structure.

## FCFE

Profit After Tax  
 Add: Non Cash Charges (E.g. Depreciation)  
 Less: Capital Expenditure  
 Less: Changes in Working Capital (Excl Cash)  
**Add: Net Borrowings (Long Term)**  
 Free Cash flows to Equity (FCFE)  
 Discounted at Cost of Equity  
 Value of Equity

## FCFF

Profit After Tax  
 Add: Non Cash Charges (E.g. Depreciation)  
 Less: Capital Expenditure  
 Less: Changes in Working Capital (Excl Cash)  
**Add: Interest (post of tax)**  
 Free Cash flows to the Firm (FCFF)  
 Discounted at WACC  
 Value of the Firm (Company)  
 Less: Debt (Current Value)  
 Value of Equity

NB: We prefer FCFF approach when FCFE is negative or when capital structure is unstable

# DCF Framework – Key Issues

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## Get as close to precise information as possible

Due Diligence is key

Check for personal expenses charged to business

Check for fictitious sales

Evaluate Revenue Models (Gross vs Net)

Consider Three Stage Model to factor in multiple stages in life cycle

## Factor in the issue of scaling

Reaching 1000 vs 100,000 > 10,000,000 Users

Free vs Paid Users

Renewals – a big concern

# DCF Framework – Key Issues

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## Multiple Equity Claims

Multiple rounds of equity dilute stake and complicate valuation

## Sustained competitive advantage

Fly by night companies vs Marathon runners

## Revenue vs Profit

Check for positive contribution or EBITDA

## Carefully assess risk parameters and discount rates.

Assess Beta

Estimate the probability of default

$$\text{Value} = P_{\text{Going concern}} \times \text{DCF Value}_{\text{Going Concern}} + (1 - P_{\text{Going concern}}) \times \text{Liquidation Value}$$

# Discount Rate

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Consider:

- The type of asset being valued
- The rates implicit in comparable transactions in the market
- The geographic location of the asset and/or the location of the markets in which it would trade,
- The life/term and/or maturity of the asset and the consistency of inputs.
- The bases of value being applied,
- The currency denomination of the projected cash flows.

# DCF Framework - Cost of Capital (WACC or $K_c$ )

Cost of Capital ( $K_c$ ) represents the cost of funds used for financing the business. It is the rate of return that the suppliers of capital—bondholders and owners—require as compensation for their contributions of capital.

- If business is financed solely through Equity,  $K_c$  is the same as Cost of Equity ( $K_e$ )
- If business is financed solely through Debt,  $K_c$  is the same as Cost of Debt ( $K_d$ )
- Usually companies use a mix of Debt and Equity while financing their business, thus the overall cost of capital is derived from a weighted average of cost of all capital sources, known as the Weighted Average Cost of Capital (WACC)

Cost of capital represents a minimum benchmark rate that a company must overcome before it can generate value for its financiers.

**Discount rate for FCFE: Cost of Equity ( $K_e$ )**

**Discount rate for FCFF: Cost of Capital (WACC)**

# DCF Framework – Cost of Debt (Kd)

## Cost of Debt (Kd)

The Cost of Debt is the interest rate paid by the company on such debt. However, since interest expense is tax-deductible, we use the After-Tax Cost of Debt for Capital budgeting purposes. The after-tax cost of debt is calculated as:

Pre Tax Cost of Debt x (1 – Tax rate)

## Example:

If the rate at which the company can borrow funds from the financial institutions is 11% and the tax rate applicable to the company is 30%. The Post Tax Cost of Debt would be  $11\% \times (1 - 30\%) = 7.7\%$

Alternatively, Assume the Govt Borrowing Rate + FIMMDA spread for a comparative bond

Kd represents Rate of debt at which the company can borrow today, not the historical rate.

# DCF Framework – Cost of Equity (Ke)

Although the rate of return demanded by equity investors is not as clearly defined as it is by lenders, equity investors do expect a return on their investment. Cost of equity is approximated by the Capital Asset Pricing Model (CAPM).

$$\text{Cost of Equity} = \text{Risk Free Rate} + \text{Beta} \times \text{Market Risk Premium}$$

**Risk Free Rate:** a return on an investment that has least likelihood of default e.g. 10 Year Government Bond Yield

**Company's Beta:** Sensitivity of stock return with respect to the market return e.g. if beta is 1.8 and the market is expected to move up by 10%, then the stock should move up by 18% ( $1.8 \times 10$ ) [Cov / Var]

**Market Risk Premium:** Risk premium is what a particular market (E.g. BSE Sensex) earned over the rate that a risk free asset (e.g. Govt bond) earned. i.e. [Market Return – Risk Free Rate of Return]



# DCF Framework – Beta

Since the companies are not traded, the ideal approach is to take a proxy beta of a closest listed competitor and adjust the beta for the company being valued. For adjustment, the proxy beta should be “unlevered” using the average debt-to-equity ratio for the proxy company (or the average industry D/E Ratio). The final step is re-levering beta, using private company’s target debt/equity ratio.

**Example:** Beta of a private company Om Ltd can be assessed based on the following information.

Average Beta of comparable listed companies = 1.64 (Levered Beta)

Average D/E Ratio of comparable listed companies = 0.34

Tax Rate = 30%

Target D/E Ratio of Om Ltd = 0.5

**Unlevered Beta = Levered Beta / (1 + (1 – Tax Rate) x D/E ratio)**

**= 1.64 / (1+(1-0.3) x 0.34) = 1.32**

**Levered Beta = Unlevered beta x (1 + (1 – tax rate) x Target D/E Ratio)**

**= 1.32 x (1+(1-.3) x 0.5) = 1.78**

# DCF Framework – WACC Calculation

Example:

Suppose DM Ltd has a capital structure composed of the following:

Debt                      30 million

Equity                    45 million

If the before-tax cost of debt is 11% (Pre tax  $K_d$ ), the required rate of return on equity is 16.5% ( $K_e$ ), and the marginal tax rate is 30%, what is DM Ltd's weighted average cost of capital?

Solution:

$$\text{Weight of debt } (W_d) = 30 \div (30 + 45) = 0.40$$

$$\text{Weight of common equity } (W_e) = 45 \div (30 + 45) = 0.60$$

$$\text{WACC} = [W_d \times \text{Post Tax } K_d] + [W_e \times K_e]$$

$$\text{WACC} = [(0.40) \times (0.11)(1 - 0.30)] + [(0.60)(0.165)]$$

$$= 0.0308 + 0.0990$$

$$= 0.1298 \text{ or } 12.98\% \sim 13\%$$

# DCF Framework – Beta

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What if there is no listed comparable at all?

**Size Risk:** In case assessment of Beta of a private company is difficult due to absence in different capital structure information, an alternative may be to use the industry beta as a proxy and use a Size Risk to enhance the overall cost of Equity. This risk may not be factored into the Beta and thus may be added as an additional risk.

# Growth Rate

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While growth rates are derived based on detailed estimates and forecasts that are a mix of objective and subjective assessment, growth rate in earnings can be estimated as:

$$\text{Growth Rate} = \text{Reinvestment Rate} \times \text{Return on Equity}$$

$$\text{Reinvestment Rate} = \text{Investment in New projects} / \text{Current Earnings}$$

$$\text{Return on Equity (ROE)} = \text{Profit After Tax} / \text{Book Value of Equity}$$

Alternatively,

$$\text{Growth Rate} = \text{Retained Earnings} / \text{Profit After Tax} \times \text{ROE}$$

# How to calculate Terminal Value

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The terminal growth rates typically range between the historical inflation rate and the average GDP growth rate at this stage.

A terminal growth rate higher than the average GDP growth rate indicates that the company expects its growth to outperform that of the economy forever.

*However, conventionally, Corporate sector outperforms GDP Growth. Plus companies may be expected to diversify beyond domestic borders when they grow big and may scout for high growth countries constantly.*

One simple proxy for the nominal growth rate of the economy is the risk-free rate.

# How to calculate Terminal Value

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## Common methods

- Gordon growth model/constant growth model - appropriate only for indefinite-lived assets
- Market Approach/Exit Value - appropriate for both deteriorating/finite-lived assets and indefinite-lived assets, and
- Salvage Value/Disposal Cost - appropriate only for deteriorating/ finite-lived assets.
  
- No growth Company Terminal Value = Cash flow for next Year / Discount rate
  
- Stable Growth Company Terminal Value = Cash flow for next Year / (Discount rate – Growth Rate)

# DCF Calculations

OmCom Pvt Ltd							
Growth rate for next 5 years	18.00%						
Terminal Growth Rate	6.00%						
Cost of Equity	16.50%						
Additional Risk premium	4.50%						
WACC / Discount Rate	21.00% Since no Debt. Thus Cost of Equity is same as WACC						
FCFF (Amount in INR '000)	0	1	2	3	4	5	5 (Terminal)
	2019 A	2020 E	2021 E	2022 E	2023 E	2024 E	2024 E
Revenue	353,066.94	To be estimated for each year					
PAT	32,280.48	To be estimated for each year					
Add: Depreciation and Non-Cash Expenses	14,922.11	To be estimated for each year					
Less: Capital Expenditure	15,810.47	To be estimated for each year					
Less: Changes in Non-Cash Working Capital	(12,723.52)	To be estimated for each year					
Add: Interest (1 - tax rate)		- To be estimated for each year					
Free Cash Flow to the Firm (FCFF)	44,115.64	49,850.67	56,331.26	63,654.32	71,929.39	81,280.21	
Terminal Cash Flows							574,380.13
PV of Cash Flows		41,198.90	38,475.01	35,931.21	33,555.59	31,337.04	221,448.40
Value of the Firm	401,946.15						
Less: Value of Debt	0.00						
Add: Cash	48,90.56						
Value of Equity (Operating Assets)	406,836.72						
Less: Discount for KMP	14,200.00	The director will resign after takeover; value attributed to such director					
Add: Investment Property	54,000.00						
Value of Equity	446,636.72						
No. of Shares ('000)	1,319.69						
Value per Share (INR)	338.44						

Numbers used are for academic calculation purposes and are not actuals

Handbook on  
**Valuation** of  
Securities and Financial Assets

Third Edition

Bloomsbury Professional India



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CA, CFA, MS Finance, MBA, IIM-C, Registered Valuer

With comprehensive coverage of Revised IBSA by Institute for Registered Valuers. This revision will come into effect from 1st June, 2020

**Highlights:**

Enhanced and updated with:

- Over 1,000 Examination oriented questions, case studies (online and offline) – Including actual exam questions.
- Comprehensive and practical focus for valuation of financial assets and securities (India focus).
- Online resource with Excel templates.
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