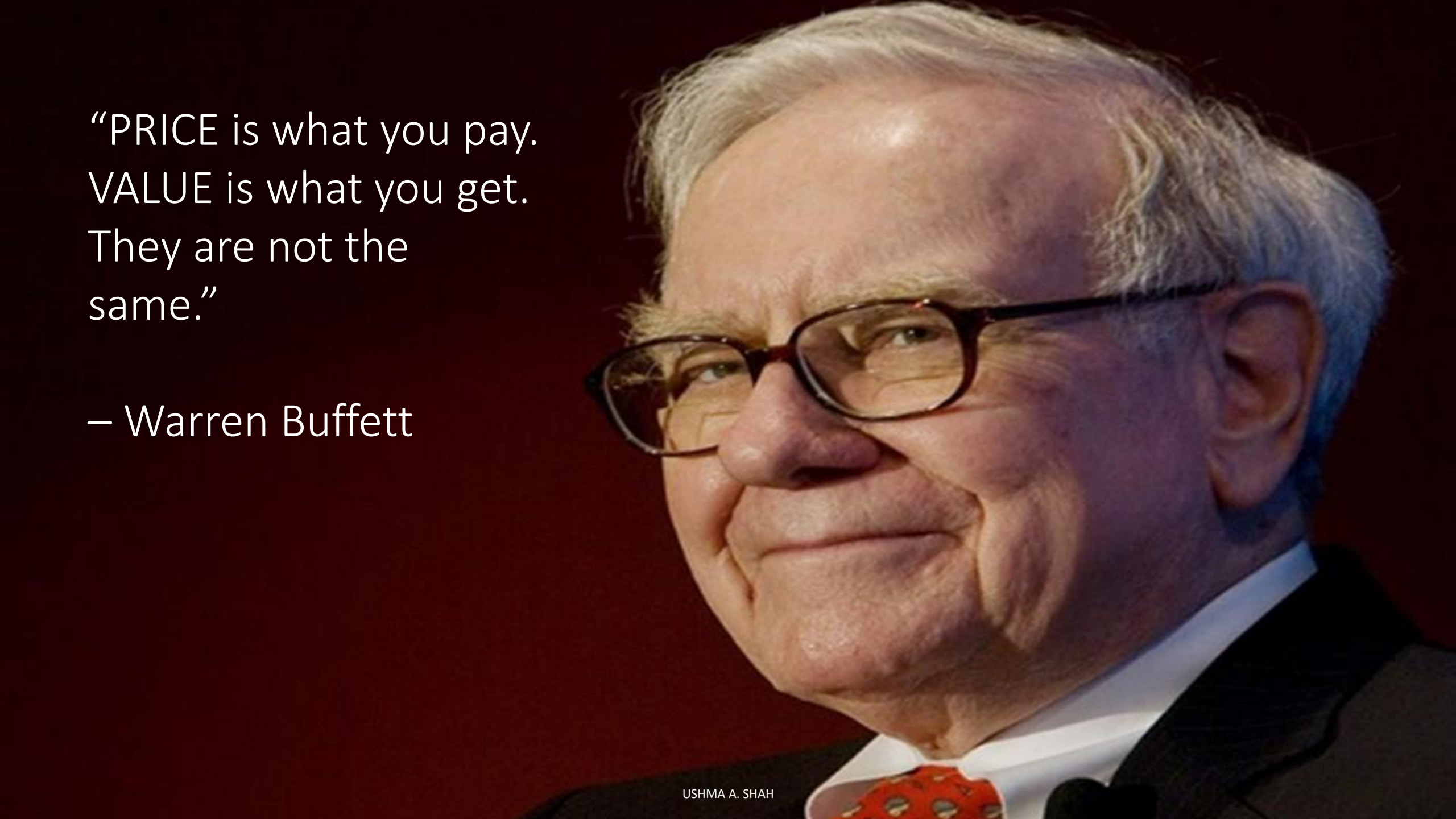
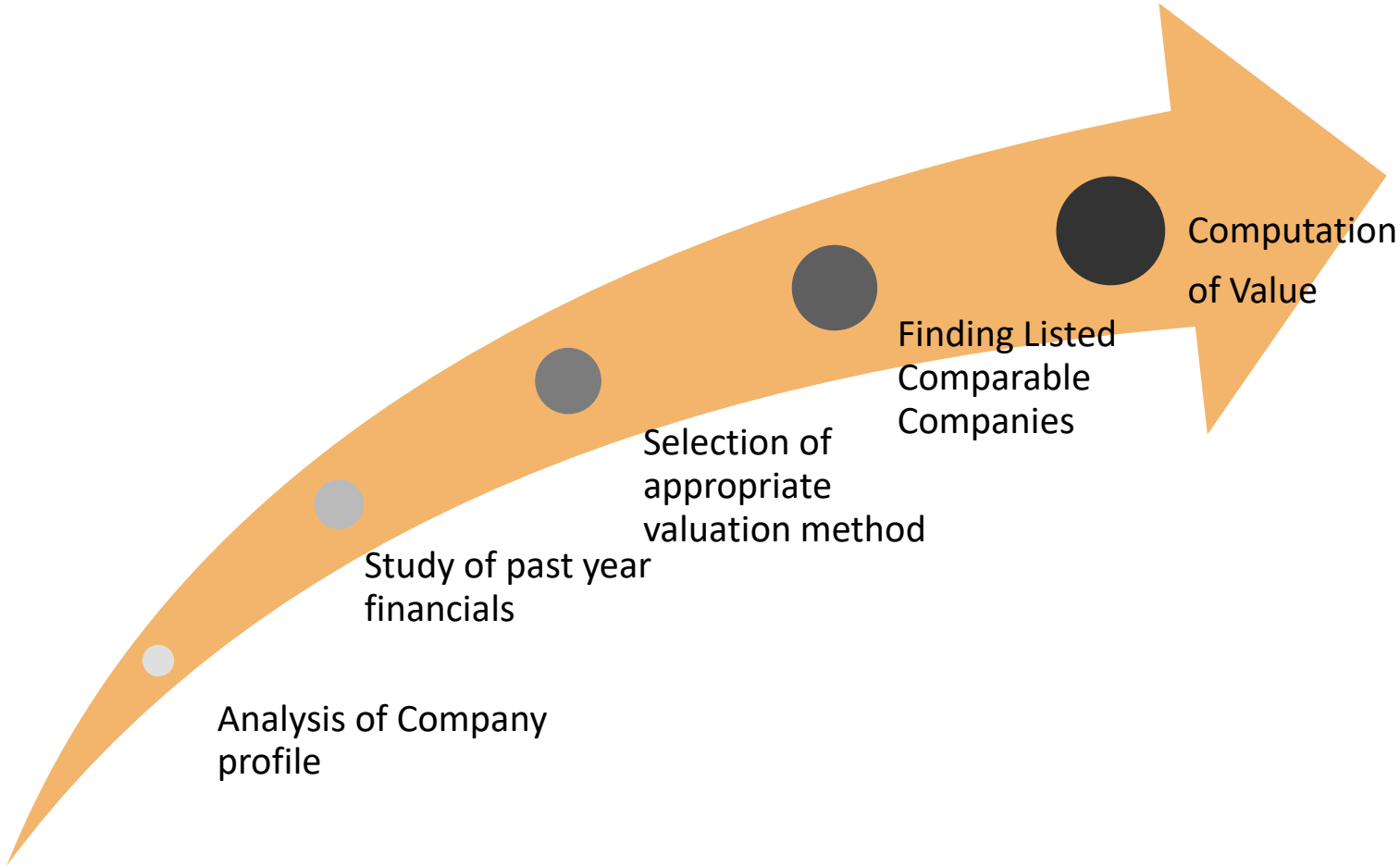
Valuation Techniques

USHMA SHAH

BANSI S. MEHTA & CO.


“PRICE is what you pay.
VALUE is what you get.
They are not the
same.”
– Warren Buffett

Overview of the Valuation Process



Types of Valuation

- Exchange of shares in a Merger/Demerger
- Acquisition/Sale of Business
- Transfer/Issue of Shares
- Statutory Valuations
- Litigation Related Valuations
- Family Settlement
- Brand/ Intangible Valuations

Types of Valuation

Approaches to Valuation

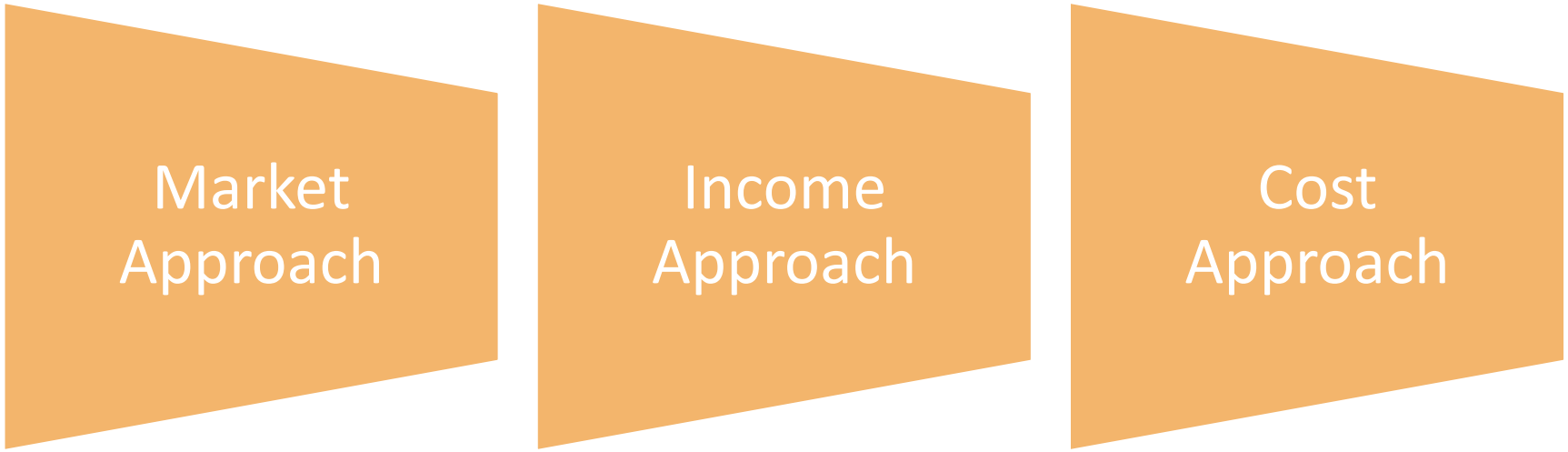
- Market Approach
  - Market Price Method
  - Comparable Companies Multiple Method (CCM)
  - Comparable Transaction Multiple Method (CTM)
- Income Approach
  - DCF Method
  - Yield Approach
- Cost Approach

Other Considerations

Other Value drivers

Case Studies

Approaches to Valuation



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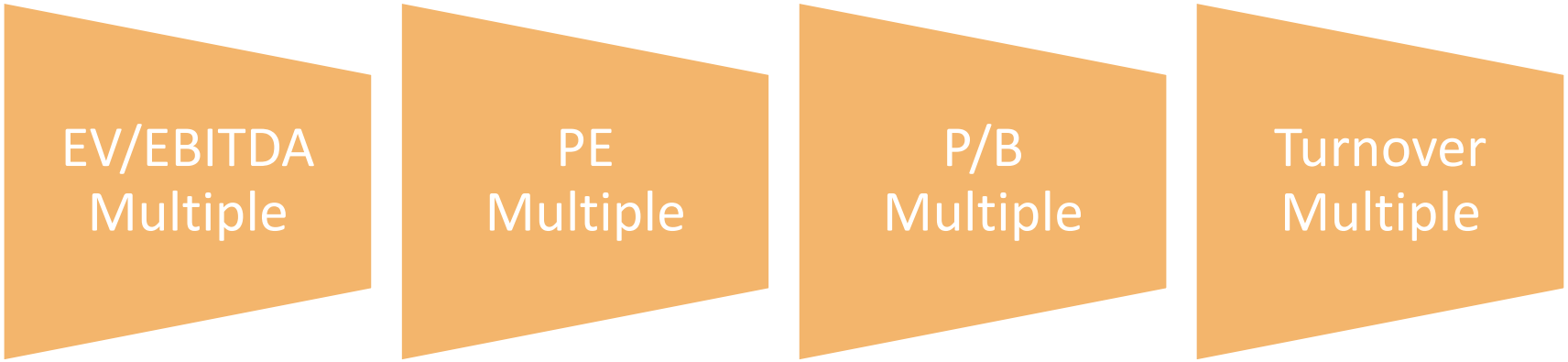
Market Approach

Market Price Method

- Evaluates the value on the basis of prices quoted on the stock exchange
  - Stock Exchange with Higher Volume is considered
  - Attention may have to be drawn for:
    - Thinly traded / Dormant Scrip – Low Floating Stock
    - Significant and Unusual fluctuations in the Market Price
- Volume Weighted Average of quoted price for past 6 months/60 days is typically considered

Comparable Companies Multiple Method

- Approach involves deriving value based on Earnings potential of the Business or its Asset-base



- Normalized Earnings are considered to arrive at a value under each of the above approach

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Earnings Normalisation

Reported Earnings + **Adjustments** (For non-recurring, non-economic, unusual items) = **Normalised Earnings** (Earnings capacity of the business if it is run efficiently)

Earnings Normalisation

In case of a manufacturing company, are the following items operating:

- Loss on Sale of Fixed Assets
- Interest Income
- Rent Income on Investment Property
- Foreign Exchange Gain/Loss
- Listing fees

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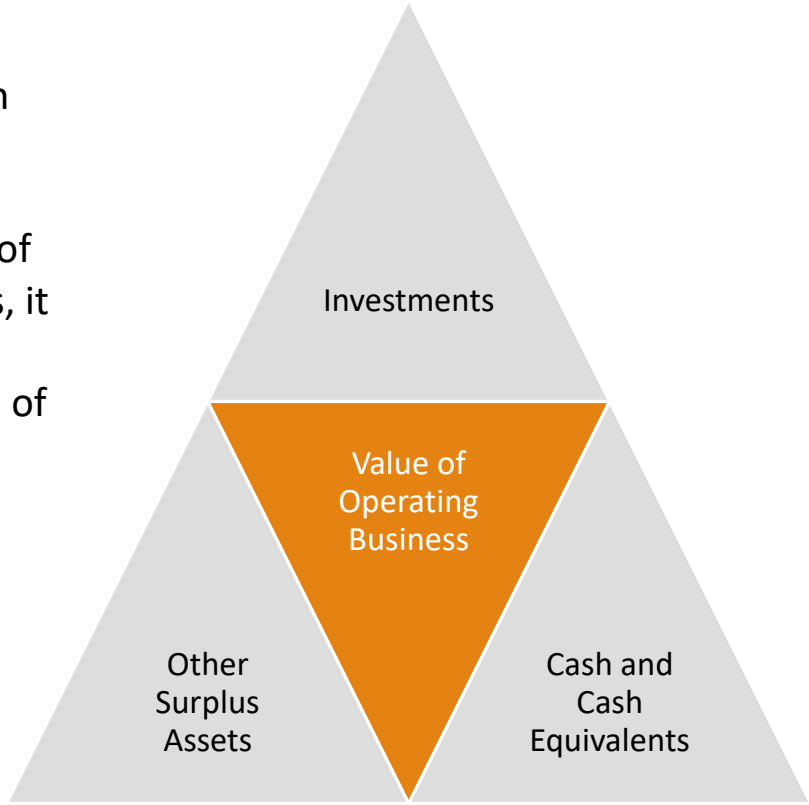
Adjusted Market Capitalization

- Only operations of the company are comparable across industry and not its investments portfolio, cash and cash equivalents and other surplus assets
- The market capitalization of an entity reflects the value of the entire business including non-operating assets. Thus, it is essential to adjust the market capitalization of comparable companies so as to ensure it captures value of only the operating business.
- Mathematically,

  Adjusted Market Capitalization = Market Capitalisation - Cash and cash equivalents - Investment after a discount - Value of other surplus assets.



Types of Valuation

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Other Value drivers

Case Studies

How to arrive at peer group?

Step 1

Select listed companies in same industry

Step 2

Apply a revenue filter to arrive at companies with similar size of operations

Step 3

Check the business profile and the annual reports to arrive at the final list of comparable companies

1. Also to check that the companies are frequently traded at this step.
2. For the comparable companies to confirm at this step that the revenue from its comparable activities is atleast 50% of its total revenue.
3. To check the comparable companies for any abnormalities/news/restructuring etc and to arrive at the final list of comparables

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Other Considerations

Other Value drivers

Case Studies

EV/EBITDA Approach

Typically used for:

- When comparing companies with varying leverage

Involves determination of maintainable Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA)

Multiply the computed EBIDTA with the Enterprise Value to EBIDTA (EV/ EBITDA) multiple of the comparable companies to arrive at the Enterprise Value

Add Surplus Assets, reduce contingent liabilities likely to crystallise and the amount of debt to arrive at the Business Value.

Types of Valuation

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Other Value drivers

Case Studies

EV/EBITDA Multiple

#EBITDA is adjusted for non-operating and non-recurring items of income and expenses

Types of Valuation

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Other Value drivers

Case Studies

PE Multiple Approach

Typically used for:

- Companies where earnings are positive, stable, and predictable.

Involves determination of maintainable profits

Multiply the computed profit with the Price to Earnings (PE) multiple of the comparable companies to arrive at the Business Value.

Add Surplus Assets, reduce contingent liabilities likely to crystallise to arrive at the Business Value of the Company.

Types of Valuation

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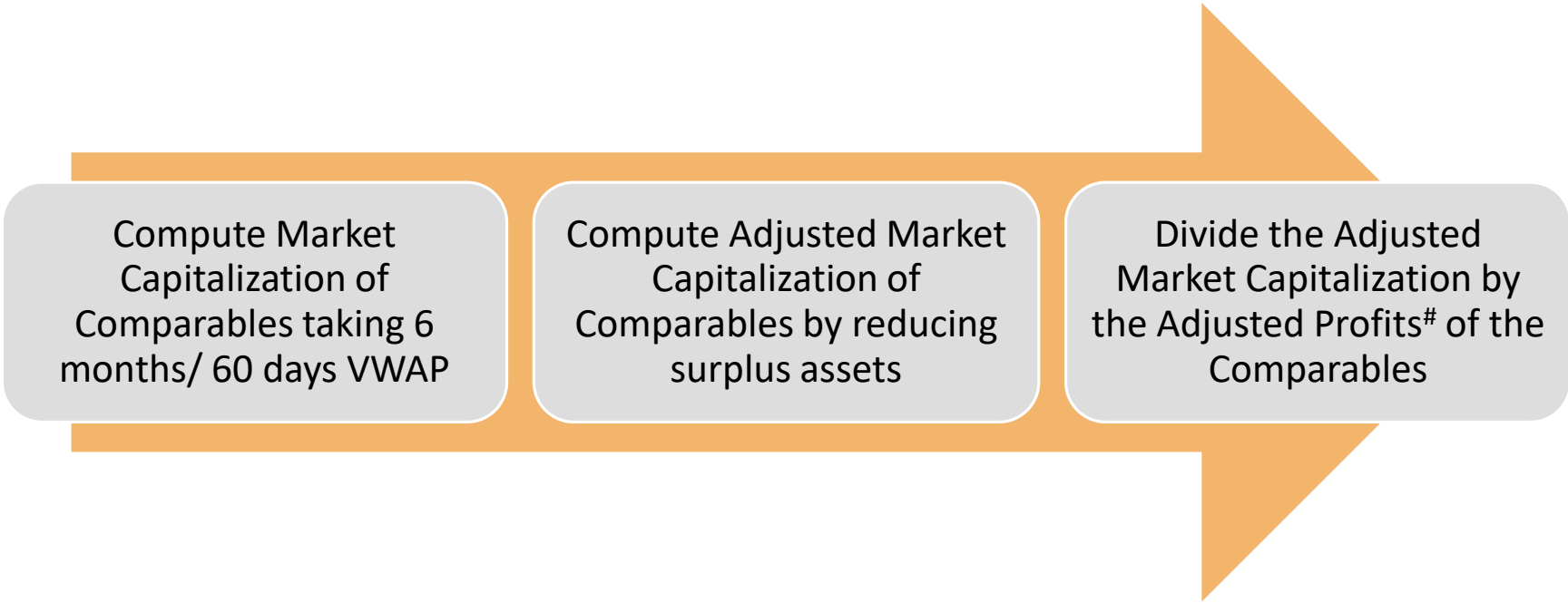
PE Multiple



#Profits are adjusted for non-operating and non-recurring items of income and expenses

Types of Valuation

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Other Considerations

Other Value drivers

Case Studies

P/B Approach

Typically used for:

- NBFC Companies
- Manufacturing Companies

Determine the Net-worth of the Company excluding Surplus Assets

Apply Price to Book Value (P/B) Multiple based on peer Group

Add Surplus assets, reduce contingent liabilities likely to crystallise, to arrive at the Business Value

Types of Valuation

Approaches to Valuation

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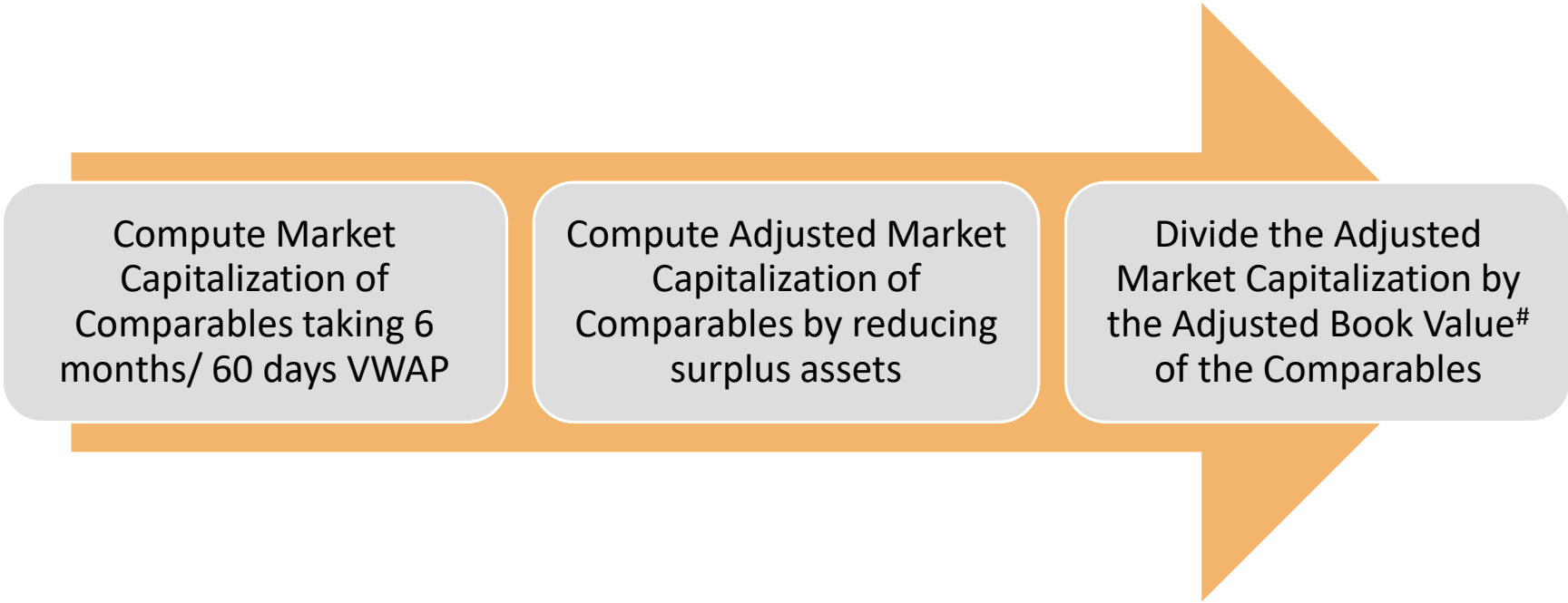
Other Considerations

Other Value drivers

Case Studies

P/B Multiple



#Book Value as adjusted for cash and cash equivalents, investments and other surplus assets

Types of Valuation

Approaches to Valuation

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Other Considerations

Other Value drivers

Case Studies

Proforma of P/B Approach

Particulars	Amount
Non – Current Assets (A)	XXX
Current Assets (B)	XXX
Non – Current Liabilities (C)	XXX
Current Liabilities (D)	XXX
Net Asset Value (A) + (B) – (C) – (D)	**XXX**
Multiply By: P/B Multiple (Comparable Companies)	XXX
Value of Operating Business	**XXX**
Add: Surplus Assets	XXX
Adjusted Fair Value of Business	**XXX**

Types of Valuation

Approaches to Valuation

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Other Considerations

Other Value drivers

Case Studies

Turnover Multiple Approach

Typically used for:

- Retail Companies (Gross Merchandise Value)
- Cyclical companies where earnings are transitory
- When earnings are negative

Consider the Operating Turnover based on Company's latest available Financial Statements

Calculate Multiples for Comparable Companies (Enterprise Value to Turnover Multiple)

Add Surplus Assets, reduce contingent liabilities likely to crystallise and the amount of debt to arrive at the Business Value.

Types of Valuation

Approaches to Valuation

- Market Approach
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Other Considerations

Other Value drivers

Case Studies

Comparable Transaction Multiple Method

Typically used for:

- Cement Companies
- Telecom Companies
- NBFCs

Collect Information on Recent Takeover Transactions of Comparable Companies

Calculate Multiples for Comparable Companies

Estimate Business Value Based on Multiples

Types of Valuation

Approaches to Valuation

- Market Approach
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Other Considerations

Other Value drivers

Case Studies

Benchmarking

Typically used for:

Benchmarking is based on industry specific factors

- Telecom industry – EV per subscriber
- Cement industry – EV per ton of capacity

- Derives value for an asset by direct comparison with historic transactions for similar assets
- Usually, industry-specific operational factors are benchmarked
- Mainly used as cross-check

Types of Valuation

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Other Considerations

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Case Studies

Income Approach

Types of Valuation

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Other Considerations

Other Value drivers

Case Studies

Discounted Cash Flow ("DCF") Method

Typically used for:

- Road Projects
- Power Companies
- Cement Companies
- Start-ups
- Real Estate Companies

- Approach looks at the future cash flows (not profits)
  - Based on the present value of future estimated cash flows and terminal value using a risk-adjusted discount rate
  - PV of expected future cash flows + PV of terminal value
- Nominal or real Cash Flows
- Free Cash Flow ('FCF')
  - FCF to Firm
  - FCF to Equity
- FCF to Firm Preferred

Types of Valuation

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Other Considerations

Other Value drivers

Case Studies

Computation of FCFF

Working out Adjusted EBITDA

PARTICULARS	Year 1	Year 2	Year 3
Profit Before Tax	XX	XX	XX
Add: Non-operating Expenses	XX	XX	XX
Loss on Sale of Fixed Assets	XX	XX	XX
Less: Non-operating Income	XX	XX	XX
Rent	XX	XX	XX
Dividend Income	XX	XX	XX
Adjusted Profit Before Tax	**XX**	**XX**	**XX**
Add: Depreciation	XX	XX	XX
Add: Interest Expense	XX	XX	XX
Adjusted EBITDA	**XX**	**XX**	**XX**

Types of Valuation

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Other Value drivers

Case Studies

Proforma DCF Statement

PARTICULARS	Year 1	Year 2	Year 3
Cash inflows			
Adjusted EBIDTA	XXX	XXX	XXX
Total (A)	**XXX**	**XXX**	**XXX**
Cash outflows			
Purchase / (Sale) of Fixed Assets	XX	XX	XX
Increase / (Decrease) in Net Current Assets	XX	XX	XX
Income Tax	XX	XX	XX
Total (B)	**XXX**	**XXX**	**XXX**
(C) Free Cash Flows to Firm [(A) – (B)]	**XX**	**XX**	**XX**
Add: Perpetuity Value			XX
(D) Free Cash Flows to Firm including perpetuity	**XX**	**XX**	**XX**
(E) Mid-year Discounting Factor	X	X	X
(F) Discounted Free Cash Flows to Firm [(D) * (E)]	**XX**	**XX**	**XX**
Total Discounted Cash Flows (Enterprise Value)			**XXX**

Types of Valuation

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Other Considerations

Other Value drivers

Case Studies

Proforma Top Sheet for DCF Working

PARTICULARS	AMOUNT
Enterprise Value as per DCF Working	**XXX**
Less: Debt as at Valuation Date	(XX)
Less: Contingent Liabilities likely to crystallize	(XX)
	XXX
Add : Surplus Assets	XX
Business Value as at Valuation Date	**XXX**
Less: Fair Value of Preference Shares as at Valuation Date	(XX)
Business Value for Equity Shareholders	XXX
(÷) Number of Equity Shares	XX
Value per share	XX
Less: DLOM	(XX)
Value per share after DLOM	**X**

Types of Valuation

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Other Value drivers

Case Studies

What are Surplus Assets/ Non Operating Assets ?

- Assets that are not essential for the operation of the business by a company
- It is therefore necessary to exclude them from the operating business value

Examples of surplus assets:

- Excess cash and bank balance of the company
- Marketable securities held by the company
- Vacant land not proposed to used for operations

Types of Valuation

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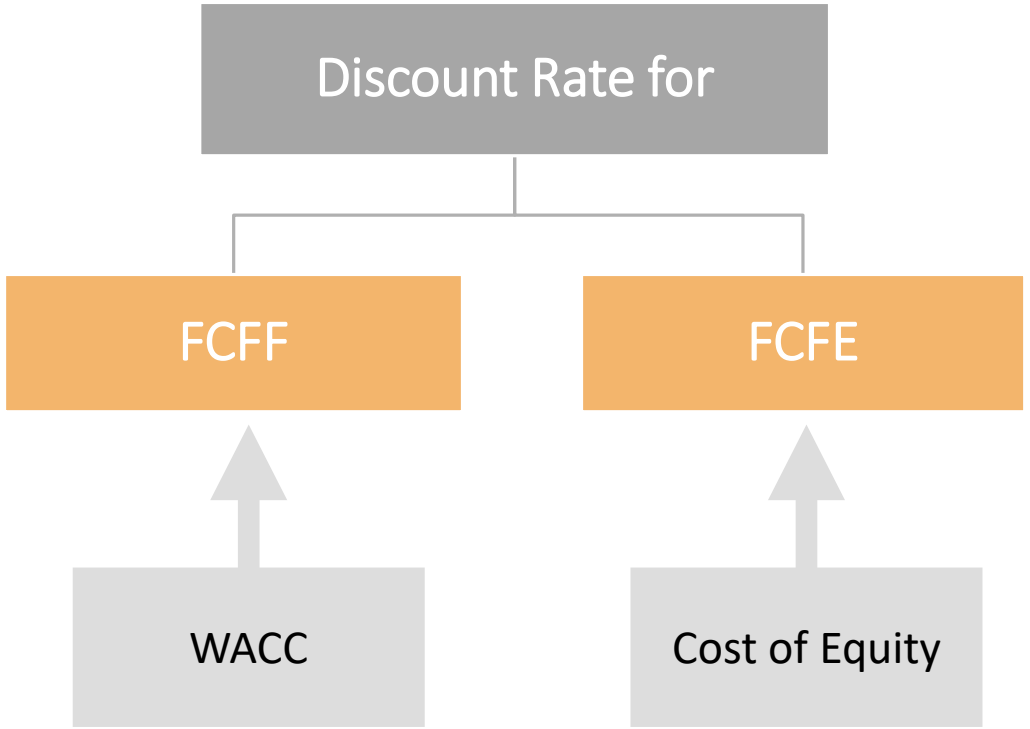
Case Studies

Discount Rate



Weights used for WACC may be:

- Industry Debt Equity
- Market Debt Equity
- Target Debt Equity

Computation of WACC

- Example:

Particulars	Cost	Weights (a)	Cost x Weights (b)
Equity [E]	ke = 20%	1000	200
Debt [D]	kd = 10%	500	50
Total		1,500	250
WACC (Σb/ Σa)			**16.67%**

- $\text{WACC} = \frac{(ke \times E)+(kd \times D)}{D+E}$

Mid-year Discount Factor

- The problem with the basic method of discounting is that it discounts the future value assuming cash flows accrue at the end of that year.
- This is inaccurate as the cash will be flowing in over the full year.
- To account for this, a mid-year discount is used to assume that all the cash comes in halfway through the year to average it out.

Basic Formula:

$$\frac{\text{Cash Flow}}{(1 + \text{Discount Rate})^{(\text{Year})}}$$

Mid-year discount formula:

$$\frac{\text{Cash Flow}}{(1+\text{Discount Rate})^{(\text{Year}*0.5)}}$$

Cost of Equity

- Cost of Equity is generally computed using the CAPM Model (sometimes a risk premium may be added, say for size, called expanded CAPM)

- **$ke = rf + \beta [E(rm) - rf]$**

  where,

  ke: Cost of equity

  rf: Risk-free rate of return

  β: Systematic risk of the equity

  E(rm): Expected rate of return on overall market portfolio

  [E(rm) – rf]: Market risk premium

Beta - Levered

- Beta technically is estimated by regressing stock returns against market returns
- β_L = Slope of $\frac{\text{(\% change in Stock price)}}{\text{(\% change in Index)}}$

If the Company is not listed, based on other comparable companies

Relation between unlevered and levered beta

- Operating Risk (say, β_U) is similar across industry, however, the capital structure is not.
- $\beta_{L,}$ as observed on the stock exchange, encompasses the risk inherent to capital structure of the firm.
- It is essential to neutralize this effect of capital structure while applying β of comparable companies.

Conceptually, β_u is the weighted average of the beta of each of its financing components, i.e.

$$\beta_U = (\beta_L \times W_E) + (\beta_D \times W_D)$$

Considering $\beta_D = 0$,

$$\beta_U = \beta_L \times W_E$$

Rearranging the above equation,

$$\beta_L = \frac{\beta_U}{W_E}$$

Cost of Debt

- Measure of cost of borrowed funds
- Post Tax Cost of Debt, since cash flows are after tax
- Cost of Debt(post-tax) = Pre-tax Cost of Debt x (1 – Tax Rate)

Cost of Preference Shares

- Yield on preference shares along is considered as the cost of preference shares

Discount Rate Estimation Issues

Premium in building COE

- Small size
- Small customer base
- Early stage difficulties

Cost Debt

- Foreign Currency Borrowings

Projection Risk

- Uncertainty associated with future cash flows

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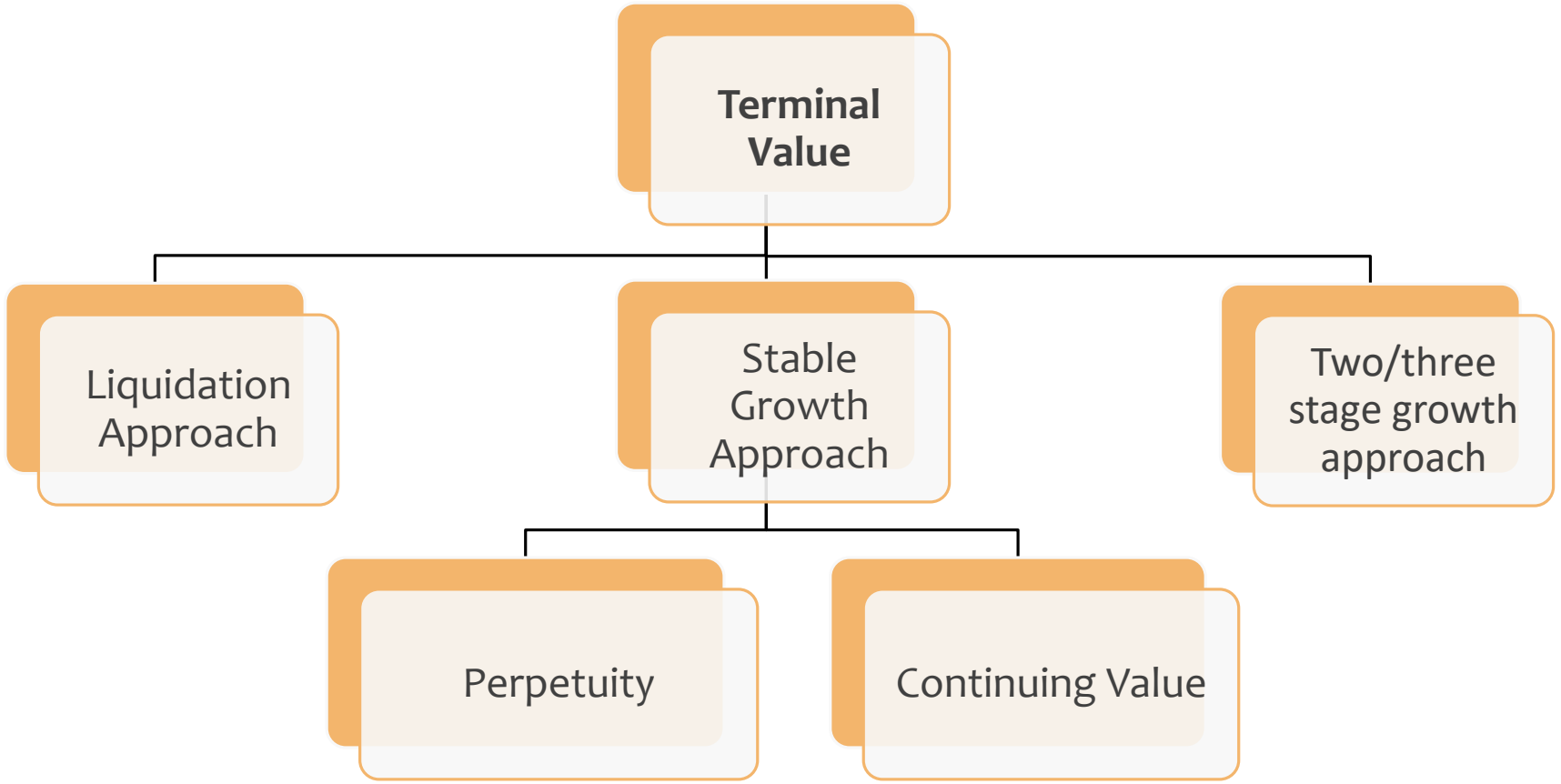
Other Considerations

Other Value drivers

Case Studies

Terminal Value for DCF

Terminal Value is the residual value of business at the end of projection period used in discounted cash flow method



Computation of FCFE

PARTICULARS	Year 1	Year 2	Year 3
Free Cash Flow to the Firm	XX	XX	XX
Less: Interest Cost (net of taxes)	XX	XX	XX
Add: Net Change in borrowings	XX	XX	XX
Free Cash Flow to Equity	**XX**	**XX**	**XX**

- Free Cash Flow to Equity should be discounted using the Cost of Equity
- FCFE is used in cases where the cash flows are more predictable, for example, Road Projects with Annuity Payments

Types of Valuation

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Other Value drivers

Case Studies

Yield Approach

Typically used for:

Companies with steady profits

Profit making companies where there are no direct comparables

Involves determination of maintainable profits

Capitalize the profits using the Cost of Equity (discussed under DCF Approach). A growth rate may be applied if deemed appropriate.

Add Surplus Assets, reduce contingent liabilities likely to crystallise to arrive at the Business Value of the Company.

Types of Valuation

Approaches to Valuation

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Case Studies

Cost Approach

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Other Value drivers

Case Studies

Asset Based Approach

Approach focuses on the asset base of the Business

Replacement Cost Method

Liquidation Cost Approach

Types of Valuation

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Other Considerations

Other Value drivers

Case Studies

Replacement Cost Method

Value based on Cost to be incurred to set-up a Green field project with similar capacities

Typically used for:

- Cement Companies
- Real Estate Companies

Consider the cost that would have to be incurred to set-up the plant

Add the realizable value of working capital and reduce the amount of debt and other liabilities

Add Surplus assets, reduce contingent liabilities likely to crystallise, to arrive at the Business Value

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Liquidation Cost Approach

Value based on the value that is recovered if the company was to wind-up

Typically used for:

- Family Settlements
- Shareholders' Dispute
- Where there is an intention to liquidate

Determine the Fair Value of each of the Assets and liabilities of the Company

Make adjustments to the Fair Value for taxes, transaction and other costs to arrive at the realizable value

Goodwill may be added to the value arrived at to above (esp. in case of family settlements where one family is taking over control).

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Other considerations for Valuation

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Some specific factors considered for Valuation

Discount for Lack of Marketability (DLOM)

Discount applied for non-marketability and low transferability and liquidity of shares

Control Premium / Discount for Lack of Control (DLOC)

When acquisition of a high stake is involved, the acquirer gets a representation in the management of the acquired company;

In such a case the acquirer is willing to pay a premium for the control so acquired and this premium is termed as "Control Premium".

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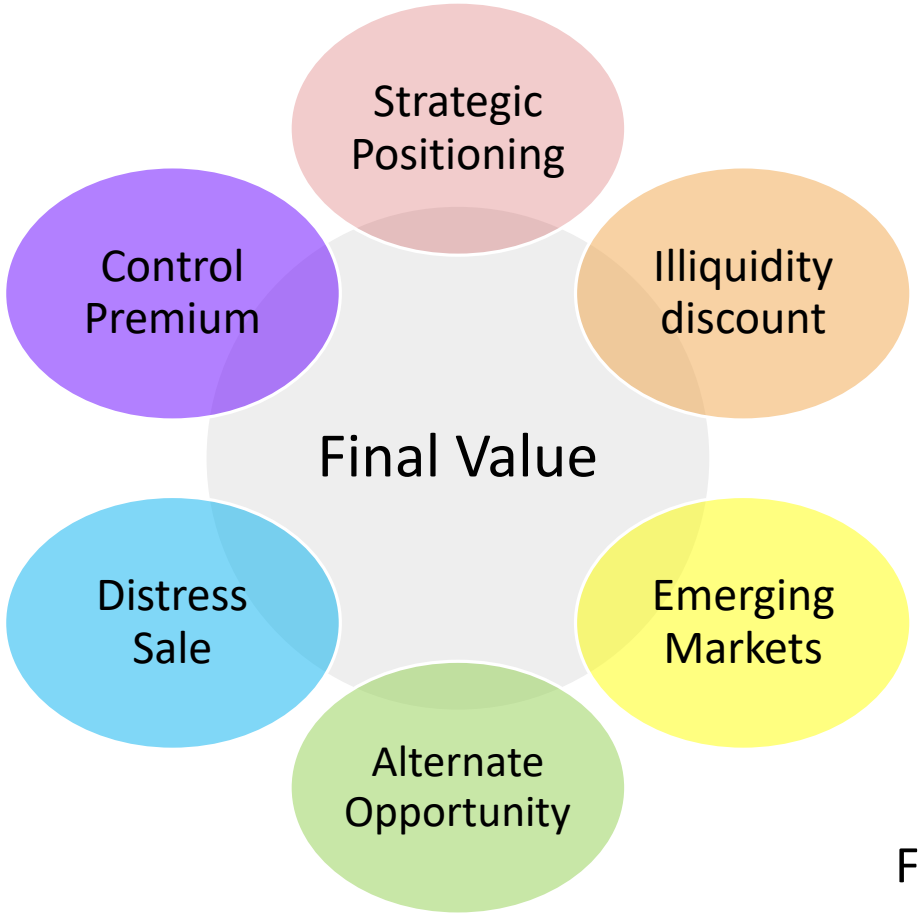
Other Value Drivers



Final Value is a result of negotiations

Case Studies

Case Study 1

- An enterprise has borrowed funds for funding its operations
- Over a period of three years, it expects to repay its debts

Should the WACC applicable to the first year be made applicable to each of the projected years?

- Yes
- No
- Can’t Say

Case Study 2

- Group A acquires a 26% stake in B Ltd., which is a private company
- The value per share of B based on profits/ cash-flows is worked out to Rs. 100

Would the acquisition take place at Rs. 100 or would the seller demand an additional price?

- Yes
- No
- Can’t Say

Case Study 3

- A hypothetical US based parent company with a wholly owned subsidiary domiciled in England. The mandate is to value the US based parent company
- Given that DCF Method is an appropriate method to value business of the subsidiary
- While valuing the Parent Company, to capture the value of subsidiary whether the projections of the subsidiary should be in USD or Pounds?
    - Home Currency of Parent Company (i.e. USD)
    - Foreign Currency (i.e. Pounds)
- What about the discount rate?

Case Study - DCF

BK Limited is a start-up technology company. What would be the most appropriate method of valuation?

- Asset Based Approach
- DCF Approach
- Earnings Approach
- None of the above

Case Study - DCF

The Valuation Date for BK Limited is March 31, 2017
Date of latest available financial statements: December 31, 2016
Period for which projections are available: For the year to end December 31, 2017 to the year to end December 31, 2021

What is the first period of cash flows that would be discounted?

- April 1, 2016 to March 31, 2017
- April 1, 2017 to March 31, 2018
- January 1, 2017 to December 31, 2017
- None of the above

Case Study - DCF

- Projected Profit and Loss Account of BK Limited

Amount in USD

Particulars		Year 1	Year 2	Year 3	Year 4	Year 5
Revenue from Operations		1500.00	2400.00	3360.00	3696.00	3991.68
Other Income						
Total Revenue	**(A)**	**1500.00**	**2400.00**	**3360.00**	**3696.00**	**3991.68**
Operating Expenses						
Direct Cost		600.00	960.00	1344.00	1478.00	1596.67
Other Expenses		15.00	24.00	33.60	36.96	39.92
Administration & Other Overheads		150.00	240.00	336.00	369.60	399.17
Maintenance Expenses		45.00	72.00	100.80	110.88	119.75
Total Expenses	**(B)**	**810.00**	**1296.00**	**1814.40**	**1995.84**	**2155.51**
EBITDA	**(A)-(B)**	**690.00**	**1104.00**	**1545.60**	**1700.16**	**1836.17**
EBITDA Margin		46%	46%	46%	46%	46%
Interest on term loan		384.16	462.71	496.22	491.44	464.17
Depreciation		440.00	500.00	575.00	645.00	710.00
Profit Before Tax		**(134.16)**	**141.29**	**474.38**	**563.72**	**662.00**
Tax		-	1.78	118.60	140.93	165.50
Profit After Tax		**(134.16)**	**139.51**	**355.79**	**422.79**	**496.50**

Case Study - DCF

- Projected Balance Sheet of BK Limited

Amount in USD

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
ASSETS					
Gross assets	4,400.00	5,000.00	5,750.00	6,450.00	7,100.00
Accumulated Depreciation	(690.00)	(1,190.00)	(1,765.00)	(2,410.00)	(3,120.00)
Net Assets	**3,710.00**	**3,810.00**	**3,985.00**	**4,040.00**	**3,980.00**
Capital Work in Progress	**1,200.00**	**1,450.00**	**1,450.00**	**1,450.00**	**1,450.00**
Current Assets	**1,700.00**	**2,340.00**	**2,564.00**	**2,761.12**	**2,761.12**
Cash Balance	100.00	100.00	100.00	100.00	100.00
Net Current Assets excluding Cash	1,600.00	2,240.00	2,464.00	2,661.12	2,661.12
Total Assets	**6,610.00**	**7,600.00**	**7,999.00**	**8,251.12**	**8,191.12**
LIABILITIES					
Equity Capital	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
Reserves	(634.16)	(494.65)	(138.86)	283.93	780.43
Net Worth	**865.84**	**1,005.35**	**1,361.14**	**1,783.93**	**2,280.43**
Term Loan	**5,744.16**	**6,594.65**	**6,637.86**	**6,467.19**	**5,910.69**
Total Liabilities	**6,610.00**	**7,600.00**	**7,999.00**	**8,251.12**	**8,191.12**

Case Study - DCF

- Projected Cash flows of BK Limited

Amount in USD

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Sources of Cash					
PAT	(134.16)	139.51	355.79	422.79	496.50
Depreciation	440.00	500.00	575.00	645.00	710.00
Total	**305.84**	**639.51**	**930.79**	**1,067.79**	**1,206.50**
Uses of Cash					
Capital Expenditure	850.00	850.00	750.00	700.00	650.00
Investments	-	-	-	-	-
Increase in Working Capital	600.00	640.00	224.00	197.12	-
Total	**1,450.00**	**1,490.00**	**974.00**	**897.12**	**650.00**
Cash flow inflow excluding Debt	**(1,144.16)**	**(850.49)**	**(43.21)**	**170.67**	**556.50**
Add: Opening Cash Balance	-	100.00	100.00	100.00	100.00
Add: Loan taken during the year	1,244.16	850.49	43.21	-	-
Funds available for repayment	100.00	100.00	100.00	270.67	656.50
Less: Loan repaid during the year	-	-	-	170.67	556.50
Closing Cash Balance	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Case Study - DCF

- Schedule of Other income and expenses for comprises of the following items:

Other Incomes

- Profit on sale of fixed asset
- Sale of scrap
- Insurance claim received
- Discount received from suppliers
- Provision written back

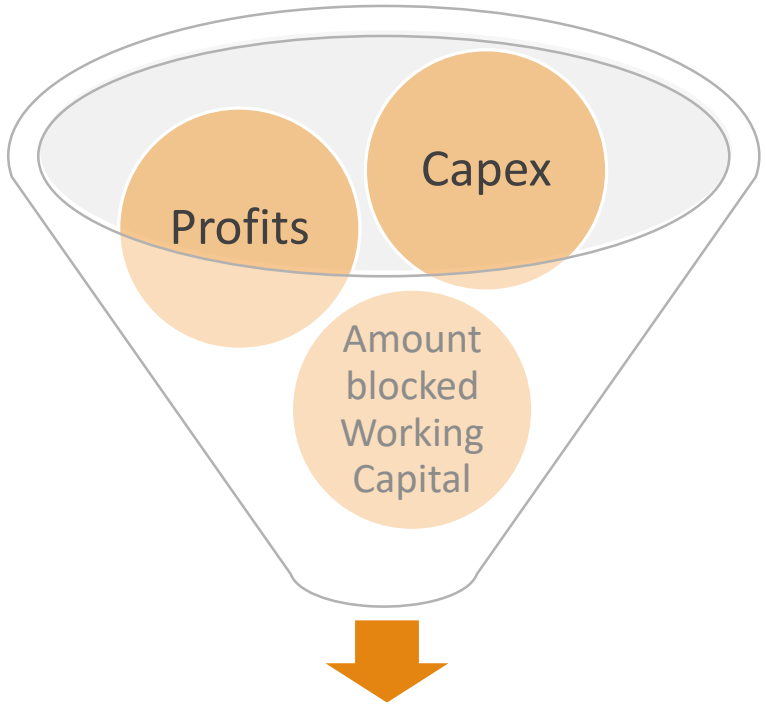
Other Expenses

- Insurance expense
- Loss on derivative trading
- Auditor's fees
- Directors' fees
- Loss on settlement of lawsuit

- List the items from the aforesaid schedule that would be adjusted from EBITDA to arrive at operating profits.

Case Study - DCF

Based on your computation, what is the amount of Free Cash Flow to the firm for the second period of discounting?



Case Study - DCF

Considering the Discount rate, i.e. cost of capital is around 8%, compute the rate of discounting for the first period.

- [1/(1+8%)]
- [1/(1+8%)^((9/12))]
- [1/(1+8%)^(0.5*(9/12))]
- None of the above

Case Study - DCF

What is the amount of perpetuity value (at the end of the explicit period) considering a growth rate of 2%, given that the cash flow in the last projected year is USD 904 and the cost of capital is 8%?

- 904* (1 + 8%)
- 904/ (8% - 2%)
- 904/8%
- 904*(1+2%) / (8% - 2%)

Thank You