Educational Material
ICAI Valuation Standard 103- Valuation Approaches and Methods

Valuation Standards Board ICAI
and
ICAI Registered Valuers Organisation
The Institute of Chartered Accountants of India
(Set up by an Act of Parliament)
New Delhi

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First Edition	:	February, 2021
Committee/Department	:	Valuation Standards Board
E-mail	:	valuationstandards@icai.in
Price	:	₹ 250/-
ISBN No	:	978-81-8441-
Published by	:	The Publication Department on behalf of the Institute of Chartered Accountants of India, ICAI Bhawan, Post Box No. 7100, Indraprastha Marg, New Delhi - 110 002.
Typeset by	:	Elite-Art, New Delhi
Printed by	:	Sahitya Bhawan Publications, Hospital Road, Agra 282 003

Foreword

Valuation is an exercise which is unique for every transaction and requires efforts, involvement, application of mind and thought for each assignment separately. Only guiding principles can be adopted and considered by the valuer while undertaking each assignment. Further, 'value' is an estimate of the value of a business or assets, arrived at by applying the valuation procedures appropriate for a valuation engagement and using professional judgment and depends on many factors including the investor, the structure, the marketplace, and the approach.

An important aspect under valuation is to arrive at the correct value, which requires selection of correct approach and one or more processes or methods available for each approach. The Institute of Chartered Accountants of India (ICAI) has issued ICAI Valuation Standards 2018 which recognises three broad approaches to business valuation, namely, the Income Approach, the Market Approach and the Cost Approach under ICAI Valuation Standard 103- Valuation Approaches and Methods.

The application of the correct approach and principles is crucial for arriving at an accurate fair value. In this regard, there was a need for practical case studies and detailed elucidation of ICAI Valuation Standard 103.

At this juncture, I compliment the efforts of Valuation Standards Board and ICAI Registered Valuers Organisation in taking this joint initiative of bringing out this "Educational material on ICAI Valuation Standard 103- Approaches and Methods", with the aim to facilitate the understanding and considerations required in selection of valuation approaches and practical applications of various valuation methodologies.

I extend my sincere appreciation to the entire Board of ICAI RVO and Valuation Standards Board of ICAI specially appreciate the efforts put in by CA. Pramod Jain, Chairman and CA. Dheeraj Kumar Khandelwal, Vice- Chairman of the Board for initiating this Educational Material.

I am confident that this Educational Material will be very useful not only to the members of the profession but also to other concerned stakeholders in proper understanding and implementation of the Standard.

CA. Atul Kumar Gupta
President ICAI
Director ICAI RVO

Date: 4th February 2021
Place: New Delhi

Preface

The Institute of Chartered Accountants of India (ICAI) through its Valuation Standards Board in the year 2018, came up with ICAI Valuation Standards in 2018 that have been adopted by ICAI Registered Valuers Organisation (ICAI RVO).

The wide variation in valuation methodologies and approaches across markets has made it difficult to compare valuations. Therefore, a need was felt for an Educational Material on ICAI Valuation Standard- 103, *Valuation Approaches and Methods* that will help the members in developing better understanding of the subject and drive greater efficiency in valuation activities undertaken by them.

Moving ahead, the Valuation Standards Board of ICAI jointly with the ICAI Registered Valuers Organisation (ICAI RVO) has formulated Educational Material on ICAI Valuation Standard- 103, Valuation Approaches and Methods to provide guidance by way of illustrations and Frequently Asked Questions (FAQs) explaining the principles enunciated in the Standard.

This Educational Material contains summary of ICAI Valuation Standard- 103 discussing the key requirements of the Standard in brief, Case Studies, Illustrations and the Frequently Asked Questions (FAQs) covering the issues, which are expected to be encountered frequently while implementing this Standard. The text of ICAI Valuation Standard- 103 has been included as an Appendix to make this publication comprehensive.

We may bring to the kind attention of the readers that the views expressed in this publication are the views of the Valuation Standards Board and are not necessarily the views of the Council of the Institute. The purpose of this publication is to provide guidance for implementing this ICAI Valuation Standard effectively by explaining the principles enunciated in the Standard with the help of examples. However, while applying Valuation Standards in a practical situation, reference should be made to the text of the Standards.

In this connection, we take this opportunity in thanking the President of ICAI CA. Atul Kumar Gupta and Vice President, CA. Nihar N. Jambusaria for their thought leadership and continued encouragement in bringing out the publication.

We would also like to convey our sincere thanks and gratitude towards the Board of ICAI RVO comprising of Shri Rajeev Kher, Chairman of the Board and other Directors, Shri Pawan Singh Tomar, Shri Ashok Haldia, Prof. Anil Saini, Shri Prafulla P. Chhajed and Shri Rakesh Sehgal for taking this joint initiative and to provide guidance on implementation of ICAI Valuation Standard 103- Valuation Approaches and Methods.

We also wish to place on record our appreciation to members of the Valuation Standards Board, Co-opted members and Special Invitees for their help and guidance in framing and bringing out this publication.

We, on behalf of the Valuation Standards Board, would like to put on record our appreciation to CA. T. V. Balasubramanian, CA. Parag Kulkarni, CA. Tarun Mahajan, CA. Janani Vijaykumar and CA. S. V. Mathangi for their contribution in developing this Educational Material.

We would like to thank CA. Sarika Singhal, Secretary, Valuation Standards Board and CEO Designate ICAI Registered Valuers Organisation, Ms. S. Rita, Deputy Secretary ICAI, Ms Seema Jangid, CA Pragya Agrawal and CA. Vaishali Sharma for initiating this Educational material and for providing technical and administrative support in finalising the Educational Material.

We sincerely believe that this Educational Material will be of great help in understanding the provisions of ICAI Valuation Standard 103 and in implementation of the same.

CA. Pramod Jain
Chairman
Valuation Standards Board, ICAI

CA. Dheeraj Kumar Khandelwal
Vice-Chairman
Valuation Standards Board, ICAI

Date: 3rd February, 2021

Contents

Chapter 1

ICAI Valuation Standard 103 (Valuation Approaches & Methods) - Summary

[The purpose of this summary is to help the readers gain a broad understanding of the principal requirements of ICAI VS- 103 (or 'the Standard'). Reference should be made to the complete text of the Standard for a complete understanding of these requirements or in dealing with a practical situation.]

1. Background and Scope

The Standard defines the approaches and methods for valuing an asset and provides guidance on use of various valuation approaches and methods. This Standard does not provide an exhaustive list of all the valuation methods. For example, methods applicable for valuation of intangible assets and financial instruments have been covered briefly in this Standard and detailed guidance has been provided in the relevant Standards.

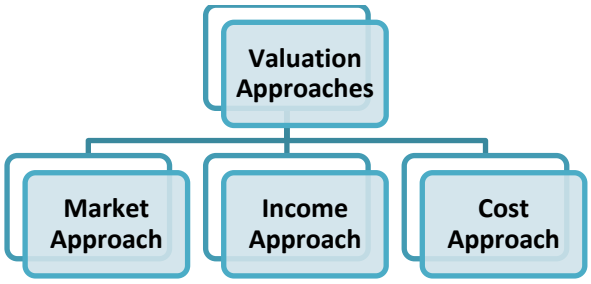
ICAI VS 103 shall be applied in selecting the appropriate valuation approaches and methodologies in determining the value of an asset, liability or a business, except the following:

a. where any requirement of the Standard is inconsistent with the requirements prescribed; or

b. valuation methodology specified by any law, regulations, rules or directions of any government or regulatory authority, or Court order.

2. Valuation Approaches

The Standard prescribes the following three approaches in valuation:-



a. Market approach – based on market evidence of what third parties have paid for comparable assets

b. Income approach – based on the present value of future earnings from the asset

c. Cost approach - based on the costs of developing or acquiring a new asset that is of similar use as the existing one

3. Selection of Correct Approach

Valuation though backed by research and analysis, involves significant amount of judgment hence the valuer needs to select the most appropriate approach or method very responsibly as there is no single approach or method that is best suited in every situation.

a. The valuation approaches and methods shall be selected in a manner which would **maximise the use of relevant observable inputs and minimise the use of unobservable** inputs. Some examples of same are as under:-

- Observable Inputs –
  - ✓ Price/Cost for similar or identical assets in active market
  - ✓ Actual Cash Flow Generated
- Unobservable Inputs –
  - ✓ Estimated Price/Cost for Unidentical assets
  - ✓ Projected Cash Flow Generated

b. **The key factors** that a valuer needs to consider while selecting an approach are as under:

- nature of asset to be valued;

- availability of adequate inputs or information and its reliability;
- strengths and weakness of each valuation approach and method; and
- valuation approach/method considered by market participants.

c. Another very important element in selection of appropriate valuation methods is the **purpose/ base of valuation.**

- If the valuation is for the purpose of liquidation, the valuer would use the Realizable Value of the Net Assets i.e., Cost Approach and not the Income approach as in this case, the company will not exist and going concern is questionable, hence predicting future cash-flows is not possible.
- In case of valuing a start-up, since it is more privately held and are illiquid as compared to investments in publicly traded companies hence there can be lack of adequate market comparables. Further in absence of another identical company, Market Approach might not be appropriate for reliable valuation in such case Income approach can be considered subject to the availability of adequate observable inputs like Actual Cash flows and projected growth.
- In some cases, the statutory requirements may drive the valuation approach wherein, the statute may have prescribed the valuation approach / method to be adopted or may have even spelt out the computation for the given specific requirement.

4. Single or Multiple Approach in Valuation?

The above three approaches are globally accepted valuation approaches and each one relies on different criteria for valuation and have their own advantages and short comings. The Valuer may consider adopting a single approach or might also choose multiple approaches to arrive at a liable conclusion. Using more than one approach is specially recommended under scenarios when there are insufficient factual inputs for a single method to arrive at a reliable value. While adopting multiple approaches valuer needs to assign weights to different approaches as considered appropriate in the given situation.

As a best practice, the values under the different approaches adopted should not be at a significant variance from each other. If the initial workings are not

meeting this criterion, the Valuer should revisit his or her analysis before concluding.

Illustration 1:

Valuation Approaches	ABC LTD		XYZ LTD	
	Value per share	Weight	Value per share	Weight
Income Approach	100	33%	200	50%
Market Approach	90	33%	210	25%
Cost/Asset Approach	80	33%	180	25%
Relative Value per Share		90		197.5
Exchange Ratio				**2.2**

Further as per ***Circular No. LIST/COMP/02/2017-18*** dated May 29, 2017 issued by BSE Limited and ***Circular No. NSE/CML/2017/12*** dated June 01, 2017 issued by National Stock Exchange of India Limited, following disclosure needs to be made by a valuer in the valuation report in respect of any scheme of arrangement involving exchange ratio for shares:

Valuation Approaches	XYZ LTD		PQR LTD	
	Value per share	Weight	Value per share	Weight
Income Approach	X	A	Y	D
Market Approach	X	B	Y	E
Cost/Asset Approach	X	C	Y	F
Relative Value per Share		X		Y
Exchange Ratio				**XX**

RATIO:

x (xxx) equity shares of XYZ Ltd of INR 10 each fully paid up for every y (yyy) equity shares of PQR Ltd of INR 10 each fully paid up.

In case any of the approach mentioned in the table above is not used for arriving at the share exchange / entitlement ratio, detailed reasons for the same needs to be provided by the valuer in his report.

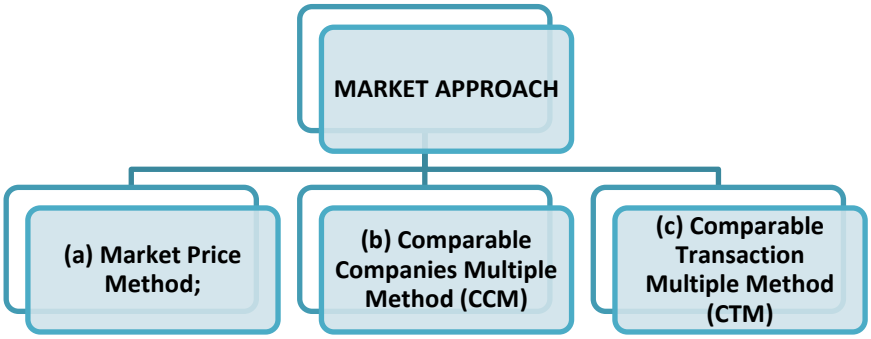
5. Market Approach

In Market Approach value is determined by comparing the subject company or assets with its peers in the same industry of the same size and region. Most Valuations in stock markets are market based and it is based on the premise of efficient markets and supply & demand.

Market approach, also referred to as relative approach, is a valuation approach that uses prices and other relevant information generated by market transactions involving identical or comparable (i.e., similar) assets, liabilities or a group of assets and liabilities, such as a business. This is also known as relative valuation approach.

For example, when investing in the stock market, buyers look at the prices of similar stocks that have been recently sold. Since the stocks of the companies are freely traded in well-regulated open market so it is easy to compare the stocks and determine the price after factoring them for variables.

The following are the common methodologies for the market approach:



a. Instances where Market Approach is applicable

- where the asset to be valued or a comparable or identical asset is traded in the active market;
- there is a recent, orderly transaction in the asset to be valued; or
- there are recent comparable orderly transactions in identical or comparable asset(s) and information for the same is available and reliable.

b. Benefits of Market Approach

The use of Market Approach is widespread, this is primarily because of its benefits, some of which are listed below:

- **It is easy to use,** simple to comprehend and is hence, less time consuming and easily understood by users.
- It incorporates information from other **valuations in a simple way and provides consistency** in the valuation process by ensuring that valuation is in line with other comparative valuations.
- It relies upon market information and implicitly embodies current market consensus about assumptions such as the discount rate and growth rate. Hence, it **reflects the current mood of the market.**

It is because of these benefits Market/Relative Approach is almost pervasive

- Most valuations on Wall Street are relative valuations. Almost 85% of equity research reports are based upon a multiple and comparables.
- More than 50% of all acquisition valuations are based upon multiples.
- Rules of thumb based on multiples are not only common but are often the basis for final valuation judgments.
- While there are more discounted cashflow valuations in consulting and corporate finance, they are often relative valuations masquerading as discounted cash flow valuations.

c. Limitations of Market Approach

The Market Approach provides a reasonable basis for valuation and is relatively a quick approach in its application, but it suffers from a number of limitations:

- Relative valuation is as good as the valuation of the comparable companies and suffers from volatility of the market. For example, in case the market is overvaluing comparable companies, the relative valuation will also lead to overstatement of value.
- Identifying comparable companies with similar growth rates, business composition, stage and riskiness of business is a difficult task and finding a perfect match is extremely challenging. Adjusting the multiples for company-specific information is subjective and, thus, debatable.

- Differences in accounting policies related to revenue recognition, depreciation, etc., though adjustable to a certain extent, can result in a distorted valuation.
- The Market Approach or relative valuation is more commonly applied to historical data and can result in the undervaluation of a company with a significant future potential or benefit that may arise due to beneficial circumstances such as market expansion.

5.1 Market Price Method

In Market Price method, a valuer considers the traded price observed over a reasonable period while valuing assets which are traded in the active market. A valuer also considers the market where the trading volume of asset is the highest when such asset is traded in more than one active market. Further the valuer should consider using weighted average or volume weighted average to reduce the impact of volatility or any one-time event in the asset.

For Example –The equity shares of Titan Company Limited are listed on both Bombay Stock Exchange ('BSE') and National Stock Exchange ('NSE') and there are regular high volume transactions in the shares, further it's a going concern entity. Accordingly, market price methodology can be considered for determining its value. The valuer will have to also consider whether to adopt the price as on a specific date or an average / volume weighted average over a period. Even the length of such period needs judgemental evaluation based on facts and circumstances linked to one off events.

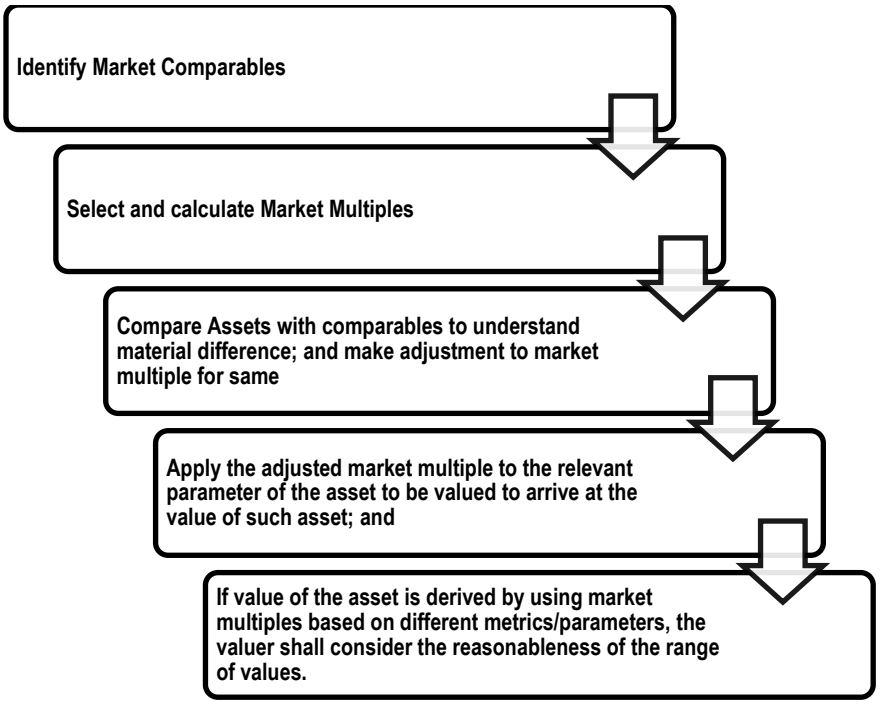
5.2 Comparable Companies Multiple (CCM) Method

CCM Method involves valuing an asset based on market multiples derived from prices of market comparables traded on active market and is also known as Guideline Public Company Method. A comparable company/assets selection is based on various factors including operational processes, cash flows, growth potential and risk similar to the company being valued.

For Example – valuing a company in healthcare business under the comparable company approach we will look into the value of a similar publicly traded company in the same industry and make necessary adjustments for evident difference like enterprise value/No of hospital beds and volume of business etc.

The inherent drawback of this method is that direct comparability is hard to achieve and can only be achieved in a few industries. This model uses a contextual approach to derive the value of a business or asset, as opposed to Income Approach that value a company internally based on cash flow and other factors, without any comparisons.

a. Major steps in deriving a value using the CCM method:



(i) Identifying and selecting the market comparable

Conventionally, looking at the companies within the sector/industry provides a well-matched set of comparable companies. Alternatively, in some cases, it is necessary to look across sectors to identify comparable companies. A valuer shall preferably use several market comparables rather than relying on a single comparable.

A valuer shall consider the factors in identifying the following comparables:

- Industry to which the asset belongs;
- Geographic area of operations;

- Similar line of business, or similar economic forces that affect the asset being valued;
- Other parameters such as size (for example - revenue, assets, etc.), stage of life-cycle of the asset, profitability, diversification, etc. This list is not an exhaustive list, there may be certain other factors which a valuer shall consider while identifying and selecting the market comparables.

A far more common choice is to consider all the firms in the sector that the firm operates in to be the comparable firm.

(ii) Computing Market Multiples

The next step is to arrive at a standardized set of ratios for comparison commonly known as multiples.

Multiples are a ratio of the enterprise value or equity value over different financial parameters like Revenue, Earnings before Interest, Tax, Depreciation and Amortisation ("EBITDA"), Profit after Tax ("PAT"), Earnings per Share ("EPS"), book value etc., with some being preferred over the others. For example, EBITDA multiple is preferred over PAT multiple so as to eliminate the effect of differences in depreciation policies and the impact of leveraging.

The market multiples are generally computed on the basis of following inputs:

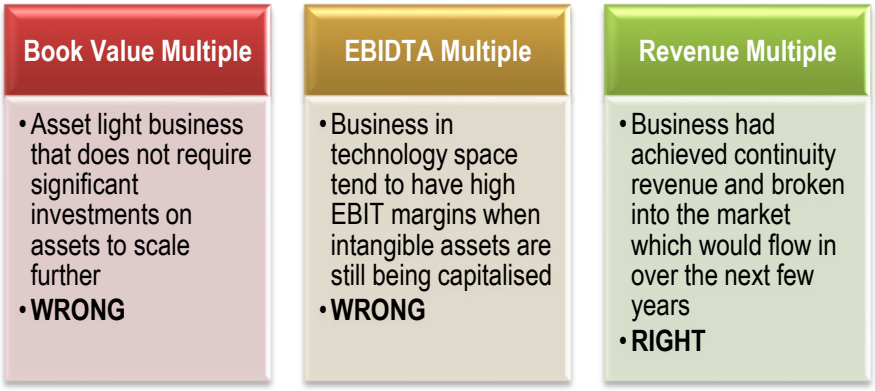
- trading prices of market comparables in an active market; and
- financial metrics such as Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA), Profit After Tax (PAT), Sales, Book Value of assets, etc.

In some cases, in addition to market multiple based on the financial metrics such multiples may also be considered by the valuer which are based on non-financial Metrics. For example,

- Enterprise Value (EV) / Tower in case of tower telecom companies,
- EV/Tonne in case of cement industry, etc.
- EV/Oil Barrel for Oil Companies

Example for Selection of Multiples:

A 5-year-old tech company is being acquired by a foreign company where the objective is to enter into the Indian market by capitalizing on their market reach. For CCM method following Multiples can be explored.



The merits and demerits of various multiples under Market/relative Valuation is as under

a) Enterprise Value/EBIDTA

- EBITDA is the closest proxy in the P&L for cash flow from operations
- It cannot be used in case of negative EBITDA
- It eliminates the impact of financial leverage like the EV to Sales multiples
- Impacted by accounting policies, except for depreciation policy

b) Price/Earnings

It is widely used due to simplicity of computation and easy availability:

- One needs to be cautious
- There can be differences in accounting policies and hence unviable
- It cannot be used when earnings are negative
- Considerations

  a. Growth phase

  b. Stock liquidity and trading volumes

  c. Comparable time period

c) Price to Book Value

Book value of equity is:

Differences between book value of assets and book value of liabilities.

A relatively intuitive measure of value which can be compared to the market price:

- Firms with negative earnings can be evaluated
- Cannot be used when book value is negative
- Book values, like earnings, are affected by accounting policies

(iii) Adjustments to the market multiple

As comparable companies are not exactly similar to the company being valued, the multiples derived from such companies cannot be applied as it is, and thus subjective adjustments are required to account for differences in risk profile, growth rate, contingent liability etc.

For example, a company with a better growth potential shall require a positive adjustment to its multiple

The following are some of the differences between the asset to be valued and market comparable that the valuer may consider while making adjustments to the market multiple:

a. size of the asset;

b. geographic location

c. profitability;

d. stage of life-cycle of the asset;

e. diversification;

f. historical and expected growth; or

g. management profile.

(iv) Arriving at the value of asset to be valued

Apply the adjusted market multiple to the relevant parameter of the asset to be valued to arrive at the value of such asset; and

Now that the method has generated their expectation of a value, we would need to adjust it (discount/ premium) to factor in for the specifics of the asset.

These adjustments may include:

- **A control premium** to factor in the benefits of controlling the business operations, directly or indirectly or the opposite, **discount for lack of control.**
- A **discount for lack of marketability** of the unlisted securities or illiquidity risk.
- A **discount for size of the business** as it may not have reached the stage where the business risk/ organizational is relatively low or small stock risk.
- **A discount for the secondary transaction** as the transaction is between shareholders only and do not mean providing the company with growth capital, as in most other cases that warrant a valuation.
- Any other specific adjustments such as **synergy gains, cost of post transaction integration, etc.**

Illustration 2:

A 6-year-old and fairly established company LMN Ltd. has total Sales of Rs 3500 Mn and PAT of Rs 50 Mn (including one-time expenses). The comparable multiples for business in same industry and with similar attributes are as under.

	Market Data			Financial Data			Valuation Multiples		
Co.	**Price**	**Mkt Cap**	**EV**	**Sales**	**EBIDTA**	**PAT**	**EV/ Sales**	**EV/EBIDTA**	**PE**
Rs/Share		**Rs in Mn**	**Rs in Mn**	**Rs in Mn**	**Rs in Mn**	**Rs in Mn**			
ABC Ltd	120	15000	20000	10000	4000	1000	2.00	5.00	15.00
PQR Ltd	250	10000	12000	5000	2000	500	2.40	6.00	20.00
XYZ Ltd	50	20000	25000	15000	5000	1000	1.67	5.00	20.00
Average							**2.02**	**5.33**	**18.33**

Hence from above EV/sales can well be considered as a multiple as PAT is not normal and has one-time elements too. Accordingly, the Valuation of LMN ltd can well be considered as

= 2.02 * Rs 3,500/- Mn = Rs 7,077/- Mn

5.3 Comparable Transaction Multiple (CTM) Method

Comparable Transaction Multiple Method, also known as 'Guideline Transaction Method' involves valuing a business based on transaction multiples derived from prices paid in transactions of asset to be valued /market comparables (comparable transactions).

It is a variant of the Comparable Companies Multiple Method and uses transaction multiples in place of trading multiples. Transaction multiples, as the name suggests, are the multiples implied in the recent acquisitions/ disposals of comparable companies/business.

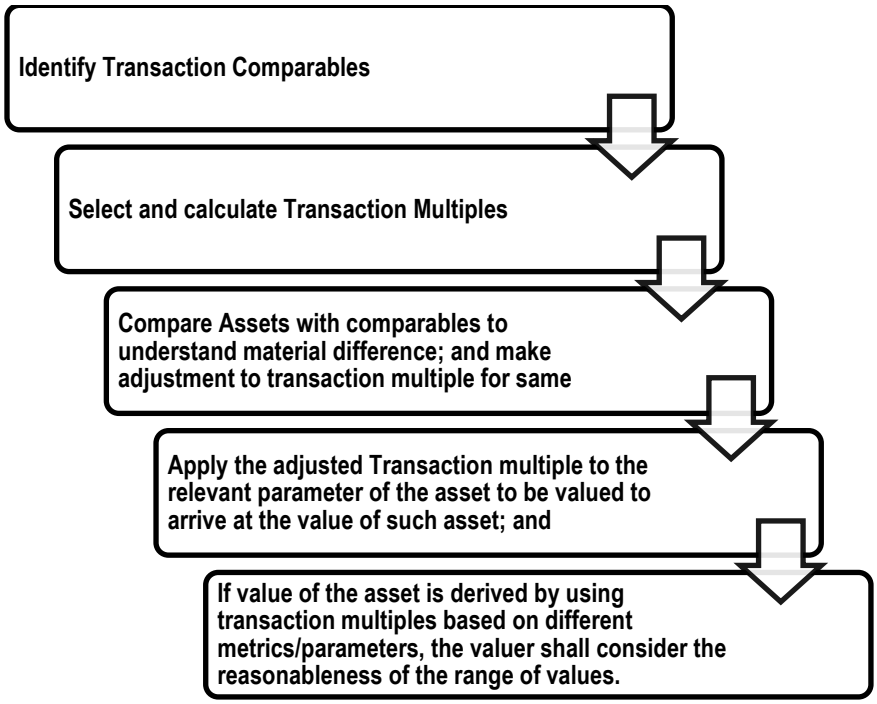
This method is especially useful if there are limited comparable companies. Also, it incorporates the market sentiments in a better way, as the multiples, unlike trading company multiples which are affected by the inefficiencies of the market, are based on an informed negotiation between buyers and sellers.

This method suffers from limitation of data availability, as the requisite information relating to transactions, especially about private companies, is seldom available.

The price paid in comparable transactions generally include control premium, except where transaction involves acquisition of non-controlling/minority stake.

This method is also affected by the implications of differences in deal structure (such as secondary transaction vs. primary transaction), acquirer specific synergies which may have been involved in the negotiated price determination etc.

a. Major steps in deriving a value using the CTM method:



(i) Identifying Transaction Comparables

While identifying and selecting the comparable transaction, a valuer may consider the factors such as-

- transactions that have been consummated closer to the valuation date are generally more representative of the market conditions prevailing during that time.
- the selected comparable is an orderly transaction;
- availability of sufficient information on the transactions to enable the valuer to reasonably understand the market comparable and derive the transaction multiple;
- availability of information on transaction from reliable sources such as regulatory filings, industry magazines, Merger & Acquisition databases, etc.

The transaction multiples are generally computed based on the following two inputs:

- price paid in the comparable transaction; and
- financial metrics such as EBITDA, PAT, Sales, Book Value, etc of the market comparable.

Even multiples based on non-financial metrics such as EV per room for hotels, EV/Bed for hospitals) can be considered based on what is considered appropriate for the instant case and the industry.

A valuer shall preferably use multiple comparable transactions of recent past rather than relying on a single transaction.

(ii) Adjustment to Transaction Multiple

The following are some of the differences between the asset to be valued and comparable transaction that the valuer may consider while making adjustments to the transaction multiple:

- size of the asset;
- geographic location;
- profitability;
- stage of life-cycle of the asset;'
- diversification;
- historical and expected growth;
- management profile such as private ownership vs. public sector undertaking; or
- conditions if any governing the comparable transaction such as deferred payment of consideration contingent on achievement of certain milestones).

Illustration 3:

A start up ABC in e-commerce has 1,00,000 active users while another established start-up of similar nature in same industry XYZ has recently been acquired for Rs 900 Million. XYZ had 3,00,000 active users as on the date of acquisition.

Ans: In the above example it is a comparable transaction and multiple here is Enterprise value/Active Users.

Hence for XYZ multiples :Rs 900 Mn/ 3,00,000(users)

EV/Active Users = Rs. 3000/ User

Hence the Value for ABC can be estimated as – 1,00,000 Users * Rs 3000/User = Rs 300 Million

6. Income Approach

The Income based approach of valuations are based on the premise that the current value of any business is a function of the future value that an investor can expect to receive from purchasing all or part of the business. It is generally used for valuing businesses that are expected to continue operating for the foreseeable future.

The basic Time Value of Money Formula is as under

$$FV = PV \times \left(1 + \frac{i}{n}\right)^{t \times n}$$

wherein;

FV = Future value of money (after earning interest)

PV = Present value of money

i = interest rate

n = number of compounding periods per year (investment period / loan period)

t = number of years (the time period for which money is held)

a. Some of the instances where a valuer may apply the income approach:

(i) where the asset does not have any market comparable or comparable transaction;

(ii) where the asset has fewer relevant market comparables; or

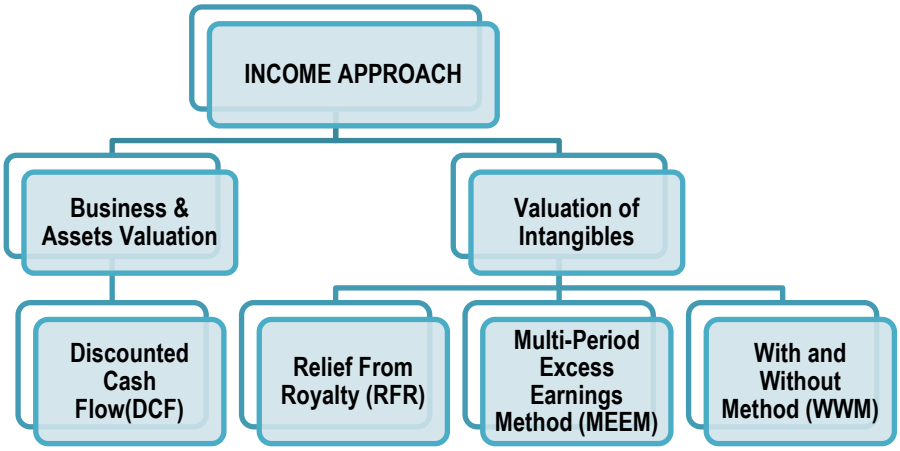
(iii) where the asset is an income producing asset for which the future cash flows are available and can reasonably be projected

b. Instances where a valuer may consider using other valuation approaches instead of income approach or in combination with income approach

- the asset has not yet started generating income or cash flows, e.g., projects under development;

- there is significant uncertainty on the amount and timing of income/future cash flows, e.g., start-up companies; or
- the client does not have access to the information relating to the asset being valued, e.g., minority shareholder may not have access to projections/budgets or growth expectations specific to the business.

c. Methods Under Income Approach



6.1 Discounted Cash Flow

The Discounted Cash Flow ("DCF") method, an application of the Income Approach is arguably one of the most recognized tools to determine the value of a business.

The Discounted Cash Flow method indicates the Fair Value of a business based on the value of cash flows that the business is expected to generate in future. This method involves the estimation of post-tax cash flows for the projected period, after taking into account the business's requirement of reinvestment in terms of capital expenditure and incremental working capital. These cash flows are then discounted at a cost of capital that reflects the risks of the business and the capital structure of the entity.

While DCF method is a reliable and acceptable means to valuation but necessary care has to be taken to ensure that key assumptions are vetted and

common pitfalls are avoided. One always needs to remember "GIGO", i.e., Garbage In Garbage Out in case of Discounted Cash Flow.

a. Merits of DCF method

- Theoretically, it is a very sound model because it is based upon expected future cash flows that will determine an investor's actual return;
- It is based on expectations of performance specific to the business, and is not influenced by short-term market conditions or non-economic indicators;
- It is not as vulnerable to accounting conventions like depreciation, inventory valuation in comparison with the other techniques/ approaches since it is based on cash flows rather than accounting profits;
- It is appropriate for valuing green-field or start-up projects, as these projects have little or no asset base or earnings which render the Cost Approach (net asset value) or the Market Approach (application of market multiples) inappropriate. However, it is important that valuation must recognise the additional risks in such a case (e.g. project execution risk, lack of past track record, etc.) by using an appropriate discount rate.

b. Drawbacks of DCF method

- It is only as good as its input assumptions. Following the "garbage in, garbage out" principle, if the inputs - Cash Flow Projections, Discount Rate, and Terminal Value - are wide off the mark, then the value generated by using this model does not reflect the fair value.
- It does not take into account several other factors, such as investment risk associated with opportunity cost, i.e., investments that could return greater cash flow yields would add an unrealised element of risk, unforeseen variations in future cash flow, and other non-financial factors.

c. Situations under which it is best to adopt DCF valuation approach

This approach is easiest to use for assets (firms) whose:.

- cashflows are currently positive and

- can be estimated with some reliability for future periods, and
- where a proxy for risk that can be used to obtain discount rates is available.
- It works best for investors who either
- have a long-time horizon, allowing the market time to correct its valuation mistakes and for price to revert to "true" value or
- are capable of providing the catalyst needed to move price to value, as would be the case if you were an activist investor or a potential acquirer of the whole firm.

d. Variants of DCF Method

There are two widely used variants of the DCF methodology, while one determines the equity Value the other helps in determining the Enterprise Value.

The key difference between the two is that Equity value is the total value of all outstanding stock of the company whereas enterprise value is the total worth of a company without factoring in the financial structuring involved.

Equity value is calculated by multiplying price of a single share of stock with the number of shares outstanding whereas enterprise value is calculated inclusive of the market value of equity and market value of net debt.

Equity Value can be determined from Enterprise Value by eliminating following:

Add/(Less): Adjustments

Add: Cash & Cash Equivalents (to the extent it is in excess of routine business needs).

Add: Fair Value of Surplus Assets including Land

Add: Fair Value of Investments and Deposits

Add: PV of MAT Credit

Less: Contingent Liability

Less: Fair Value of Long-Term Debt

Less: Fair Value of Short-Term Debt

("Further adjustments would be required if there are preference shares and / or non-controlling interests are involved, which have not been considered in the above example")

i) Free Cash Flow to Equity ("FCFE"):

This method estimates the Equity Value which is the cash distributable among the equity shareholders after all expenses, reinvestments and debt obligations have been met by the company. The Equity Value is the sum of PV of all free cash flows, discounted using the Cost of Equity ("COE").

The formula for estimating the FCFE for each year is shown as:

FCFE = Net Income or Profit After Tax – Dividend on preference shares+ Depreciation & Amortization – Capital Expenditure – Increase in Non-Cash Working Capital + Increase in Long Term Debt/Short Term Debt/ Preference Shares – Decrease in Long Term Debt/Short Term Debt/ Preference Shares

ii) Free Cash Flow to the Firm ("FCFF"):

This method estimates the Enterprise Value ("EV") which is the net amount of cash available for distribution among equity shareholders, preference shareholders and debt holders, after all expenses and re-investment requirements have been met. EV is the sum of Present Value ("PV") of all free cash flows, discounted using the Weighted Average Cost of Capital ("WACC"). The Equity Value can be ascertained by adjusting the non-equity claims such as external debt, preferred stock, minority interest and cash & cash equivalents from the EV.

The formula for estimating the FCFF for each year is shown as:

FCFF = Earnings Before Interest and Tax * (1-tax rate) + Depreciation – Capital Expenditure – Increase in Non-Cash Working Capital

Illustration 4:-

Particulars	**FCFF**	**FCFE**
Revenue / Sales	2,00,000	2,00,000
Cash expenses (other than interest)	70,000	70,000
EBITDA	1,30,000	1,30,000
Depreciation (as per Income Tax Act)	20,000	20,000
EBIT	1,10,000	1,10,000
Interest on long term borrowings		10,000
Interest on short term borrowings	-	10,000
PBT	1,10,000	90,000
Tax@30%	33,000	27,000
PAT	77,000	63,000
Depreciation (as per Income Tax Act)	20,000	20,000
Cash Profit after tax	97,000	83,000
Less: Net Repayment of Debt		5000
Cash flow to Firm/Equity	97,000	78,000
Net Increase in Fixed Assets	-25,000	-25,000
Increase in Working Capital*	-15,000	-15,000
Free Cash Flow	57,000	38,000

*Current Assets should include regular cash but exclude surplus cash and current liabilities should exclude short term borrowings like, cash credit limit, book debts limit, bank overdraft, deposits etc.

("Further adjustments would be required if there are preference shares and / or non-controlling interests are involved, which have not been considered in the above example")

e. The following are the major steps in deriving a value using the DCF method:

- Analyse the historical performance of the business
- Determine what you are valuing

- Develop financials projections based on underlying assumptions (generally for 4-6 years)
- Calculate post tax 'free cash flows' for the projection period – FCFF or FCFE
- Calculate the discount factor - WACC or Cost of Equity
- Discount free cash flows by the appropriate factor. Sum of the discounted free cash flows during the projection period is termed as the 'primary value'
- Estimate the terminal growth rate and calculate the terminal value
- Add the primary and terminal values to arrive at the 'Enterprise' or 'Equity' value (depending upon whether FCFF or FCFE was used)
- Deduction of net debt from enterprise value results in equity value

Sample Discounted Cash Flow: Valuations of Equity						
Particular	**Year**					**Terminal**
	1	**2**	**3**	**4**	**5**	
Revenue	xxx	xxx	xxx	xxx	xxx	
Total Cost (including Depreciation, Interest & Tax)	(xxx)	(xxx)	(xxx)	(xxx)	(xxx)	
Net Profit	xxx	xxx	xxx	xxx	xxx	
(+) Non-Cash Expense (e.g.: depreciation)	xxx	xxx	xxx	xxx	xxx	
Cash Profit	xxx	xxx	xxx	xxx	xxx	
(-) Non-Current Investments	(xxx)	(xxx)	(xxx)	(xxx)	(xxx)	
(+/-) Working Capital Changes	xxx	xxx	xxx	xxx	xxx	
(+/-) Change in Debt/Preference shares	xxx	xxx	xxx	xxx	xxx	
Free Cash Flow to Equity	xxx	xxx	xxx	xxx	xxx	Xxx
Terminal Value						Xxx
Present Value Factor @Ke	xxx	xxx	xxx	xxx	xxx	Xxx
Present Value	**xxx**	**xxx**	**xxx**	**xxx**	**xxx**	**Xxx**
Sum of Present Value	xxx					
(+) Surplus Assets	xxx					
Equity Value	xxx					

f. Valuation utilizing the Discounted Cash Flows is thus based on following three factors majorly;-

- **Discount Rate**
- **Cash Flow Projections**
- **Terminal Value**

Let's look at each of them one by one.

6.1.1 Discount Rate

The discount rate measures the risk associated with the investment, i.e., the danger of low returns, and it determine what should be the idle expected rate of return to compensate for the danger or risk undertaken. This together with the risk-free market rate of return forms the Discount rate for DCF.

For calculating Equity Value using Free Cash Flow to Equity, we use Cost of Equity (COE) as discount rate while for calculating Enterprise Value using Free Cash Flow to Firm approach, Weighted Average Cost of Capital (WACC) is used to discount the future cash flows. Of course, to both the COE and WACC, suitable premiums or discounts may be adjusted to arrive at the discount rate based on the factors such as liquidity, control, size, specific risks etc.

The Cost of Equity ("COE") reflects the return expected by the equity shareholders, to compensate for the risk assumed through their investment in the business.

The Cost of Debt ("COD") is based on the current or expected borrowing rate for the company, which may be provided by the management of the company and is generally assumed to be the market rate.

The weighted average cost of capital ("WACC") is based on the proportionate weights of each component of the source of capital, i.e., weighted average of COE and COD wherein the ratio of Equity/Debt on total capital is the proportionate weights. WACC constitutes all capital sources:

- Equity shares
- Preference shares
- Long term debts
- Short term debts

While calculating WACC market value weights of above sources are preferred over book value weights. If proportion of these sources is expected to change during explicit period then it is appropriate to calculate different WACC for different years. But if no significant changes are expected then a single WACC may be used for entire explicit period. It may also be appropriate in certain cases to consider the weights based on industry average / norms instead of using the actual weights as applicable to the particular business case. Further, though market weights are preferred, it is not uncommon in India to use book weights for the WACC computation too.

Debt: Equity ratio may be determined, as is ideally appropriate based on the current debt to equity proportion, target debt: equity ratio etc.

Now let us look into how one can derive cost of Equity and cost of debt:

A Cost of Equity

COE reflects the return expected by investors in equity of Business to compensate for the risk assumed by him through his investment in the business.

The traditional and most common methods of determining cost of equity are :

- Dividend capitalization model and
- The capital asset pricing model (CAPM).

i) Dividend Capitalization Method

As we know the value of equity is obtained by discounting expected cash flows to equity holders at the cost of equity. Thus, for publicly traded stocks if it is assumed that the market price is correct and the expected dividends is known, then the internal rate of return can be well assumed to be the cost of equity.

$$P_0 = \frac{D_1}{K_e - g}$$

P_0= Market Price of Equity

D_1= Expected dividend per share next year

K_e= Cost of Equity

g= Expected Growth Rate

Hence it can well be said that

$$K_e = \frac{D_1}{P_0} + g$$

The limitation of this approach is its base assumption that the Current stock price is the correct value of stock, which is rarely the case. Hence this approach can be practically applied only after applying some creative variations. For e.g., In a particular industry the cost of equity is determined for multiple firms within the industry and then the average cost of equity for all can be considered the general K_e for that industry.

Illustration 5:-

XYZ ltd has current stock price of Rs. 150 at NSE and its current year EPS is Rs 20, its dividend pay-out ratio is 50% and expected growth rate is 5% for next year.

Solution:

Dividend/share paid in Current Year = 20*50%
= Rs 10/-

Expected Dividend/share next year = 10*105%
= Rs 10.5/-

Cost of Equity (Ke) = (10.5/150)+5% = 12%

ii) Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) is the most commonly used method for determining COE. It is based on the fact that investors have an idea of market risk and must be compensated for it. The compensation is usually greater than the risk-free rate known as Risk Premium.

The formula for calculating cost of equity under CAPM is:

$$\boldsymbol{K_e = R_f + (R_m - R_f) \times \beta}$$

K_e= Cost of equity

R_f= Risk free rate of return

$R_m - R_f$= Market risk premium

β= Risk Index for systematic risk (regression coefficient)

CAPM is usually the preferred model to determine K_e since, unlike the dividend capitalization model, it considers a variety of factors while determine the

discounting factor. The country specific risk is considered while selecting the Risk-free rate of return. The risks inherent with the specific business or industry of the firm are reflected in the β applied. The model also accounts for expectations of returns from the market through the risk premium.

a. Risk Free Rate of Return – Most Valuers considers yields on long term default free government bonds, of the country where company's headquarter is located as the Risk Free Rate of Returns. However, this is not applicable in case of Multi-National Companies because two different companies that compete is same markets on a global basis, which are exposed to the same risks and use same functional currency (e.g., USD), should always be valued on the basis of same cost of capital regardless of the country where they are headquartered.

b. Equity Risk Premium- It is the additional returns required by an investor to move his assets from a risk-free investment to an average risk investment. The most common method of valuing same is Historical approach, wherein historical data for a group of stocks (Eg: Index like Sensex or Nifty) is used to determine by how much the average return on equity exceeds the Risk-free rate of returns. This should always be based on long term data to avoid any periodic economic impact.

c. Beta Coefficient– It is the sensitivity of the stock or asset to the market and is measured as under:

Beta of an asset = Covariance of asset with Market Portfolio/Variance of the market portfolio

The methods to arrive at beta is by taking the company's returns over a time period and compare the Index returns say Sensex or Nifty for the same period. Once we have both data sets, we take the co-variance of the stock returns and the index returns for the same period and divide it by the variance of the index returns. This gives us a coefficient which measures the relative risk of concerned company with respect to the market, for example if the coefficient is 1.5, then if the index moves by 1% up or down then company moves 1.5% in the respective direction.

Hence, the assets that are riskier than average will have betas that are greater than 1 and assets that are safer than the average will have betas that are less than 1. Every intelligent strategy to deliver high average returns ends up delivering high market beta.

d. Interpretation of Various Beta Values

- ✓ Beta < 0 (Negative Beta) means Inverse relation to the market – it is possible but highly unlikely.
- ✓ Beta = 0 Regardless of which way the market moves, the value remains unchanged.
- ✓ Eg: Cash and Government Securities.
- ✓ 0<Beta<1 Companies have volatility lower than the market Eg, Pharma stock.
- ✓ Beta = 1 Stock or portfolio tracks the market closely Eg, Index funds.
- ✓ Beta >1 Denotes a volatility that is greater than the market Eg: Real estate stocks.

e. How to Obtain Beta for Unlisted Companies

- Identify list of comparable listed companies
- Comparable listed company in Transfer Pricing Study can be of assistance
- Betas can be obtained from databases, newspapers and websites or even it can be calculated using slope function of any spreadsheet like MS Excel.
- Un-lever these betas using debt equity ratio and tax rate of respective companies.
- Calculate average of above betas
- Re-lever above beta with debt equity ratio and tax rate of unlisted company.

Formula to adjust beta for leverage & tax effects:

$$\beta_l = \beta_u \times \left(1 + \frac{Debt}{Equity} \times (1 - t)\right)$$

β_l= Levered equity beta

β_u= Unlevered equity beta

t =Marginal rate of income tax

f. Leveraged Beta

We can also lever the unlevered beta according to capital structure of the unlisted company under valuation.

Leveraged Beta = Unlevered Beta [1+(1-MTR)(D/E ratio)]

- Where MTR = Marginal rate of Tax
- D/E ratio = Debt to equity ratio

Illustration 6:-

PQR Ltd is operating in telecom industry and has a debt –to-equity ratio of 50%. Using comparable publicly traded telecom firms listed in the market it is estimated that unlevered beta or firms is 0.7. Marginal rate of tax for the country is 30% and rate of return on 10 year risk free treasury bonds is 4.5%. The average historical risk premium for the market is 5%

Leveraged Beta for PQR Ltd	= Unlevered Beta [1+(1-MTR)(D/E ratio)]
	= 0.7[1+(1-.3)(.50)]
	= 0.945
Cost of Equity as per CAPM	= 4.5% + (0.945*5%)
	= 9.225%

Illustration 7: Sample Beta Calculation for Titan over 24 months from Jan-19 to Dec-20

Months	BSE	Titan	% Changes in Titan Stock	% Changes in Index Prices	X Bar = Average of x over 24 months = 2.58%	Y Bar = Average of y over 24 months = 1.48%	Variance in Market	Covariance between stock and market
	Close Price	Close Price	(x)	(y)	(x-x bar)	(y-y bar)	(y-y bar)^2	(x-xbar) x (y-y bar)
Jan-19	36256.69	995.4						
Feb-19	35867.44	1026.95	3.17%	-1.07%	0.59%	-2.56%	0.07%	-0.02%
Mar-19	38672.91	1137.5	10.76%	7.82%	8.18%	6.34%	0.40%	0.52%
Apr-19	39031.55	1156.15	1.64%	0.93%	-0.94%	-0.56%	0.00%	0.01%
May-19	39714.2	1233.55	6.69%	1.75%	4.11%	0.27%	0.00%	0.01%
Jun-19	39394.64	1334.85	8.21%	-0.80%	5.63%	-2.29%	0.05%	-0.13%
Jul-19	37481.12	1056.15	-20.88%	-4.86%	-23.46%	-6.34%	0.40%	1.49%
Aug-19	37332.79	1104.95	4.62%	-0.40%	2.04%	-1.88%	0.04%	-0.04%
Sep-19	38667.33	1272.8	15.19%	3.57%	12.61%	2.09%	0.04%	0.26%
Oct-19	40129.05	1332.35	4.68%	3.78%	2.10%	2.30%	0.05%	0.05%
Nov-19	40793.81	1160.75	-12.88%	1.66%	-15.46%	0.17%	0.00%	-0.03%

Dec-19	41253.74	1187.6	2.31%	1.13%	-0.27%	-0.36%	0.00%	0.00%
Jan-20	40723.49	1188.1	0.04%	-1.29%	-2.54%	-2.77%	0.08%	0.07%
Feb-20	38297.29	1254.75	5.61%	-5.96%	3.03%	-7.44%	0.55%	-0.23%
Mar-20	29468.49	933.5	-25.60%	-23.05%	-28.19%	-24.54%	6.02%	6.92%
Apr-20	33717.62	969.8	3.89%	14.42%	1.31%	12.94%	1.67%	0.17%
May-20	32424.1	890.6	-8.17%	-3.84%	-10.75%	-5.32%	0.28%	0.57%
Jun-20	34915.8	950.05	6.68%	7.68%	4.09%	6.20%	0.38%	0.25%
Jul-20	37606.89	1043.25	9.81%	7.71%	7.23%	6.22%	0.39%	0.45%
Aug-20	38628.29	1099.2	5.36%	2.72%	2.78%	1.23%	0.02%	0.03%
Sep-20	38067.93	1200.5	9.22%	-1.45%	6.63%	-2.93%	0.09%	-0.19%
Oct-20	39614.07	1164.9	-2.97%	4.06%	-5.55%	2.58%	0.07%	-0.14%
Nov-20	44149.72	1357.85	16.56%	11.45%	13.98%	9.97%	0.99%	1.39%
Dec-20	47751.33	1567.5	15.44%	8.16%	12.86%	6.67%	0.45%	0.86%
Sum							**12.0%**	**12.28%**
Covariance (Stock, Market)			**Cov(x,y) = SUM [(X-X bar) x (y-ybar)] / (n-1)**					**0.56%**
Variance (Market)			**Var = sum of (y- y bar)^2 / (n-1)**					**0.55%**
Beta			**[Covariance (Stock, Market)/Variance (Market)]**					**1.02%**
Beta			**Excel Formula = Slope (X1:X23, Y1:Y23)**					

b. Cost of Debt

The Cost of Debt ("COD") is the current or expected cost for borrowing funds for the company or firm to fund its assets. It can be easily provided by the management of the company and is generally assumed to be the market rate for borrowing. However, it differs from one entity to other basis their embedded default risk. For firms that are rated by any agency we can refer to their credit rating to determine their default spread and thereafter by adding this default spread to the risk -free rate of return we can determine their cost of debt.

Illustration 8:

A company whose credit rating is BBB+ then its default spread will be 1.25%. Now assuming the 10 years treasury bond rate to be 10%, it can be well said that the company's cost of Debt is 11.25%

In case of Non-rated entities, one should look at the borrowing rate of their latest borrowings, same will give an Idea of their default spread and hence their cost of debt.

Cost of Debt considered for DCF is always post Tax and same can be determined as under

After Tax Cost of Debt = Pre-tax Cost of Debt * (1-Marginal rate of Tax)

Marginal Tax rates are the highest tax slab applicable for entity i.e., the tax paid on last penny. Generally, for all profit-making listed companies it is generally the highest Tax Slab for the country. However in case of loss-making companies there will be no tax advantage or savings on Interest hence no tax reduction shall be considered while determining cost of Debt for the years of operating losses. Further there will be benefit of carry forward of losses for the company and so impact of same shall also be considered in years when same is offsetting revenue to determine the effective tax rate.

6.1.2 Free Cash Flow Projections

Some of the important points to be kept in mind with regards to cash flow projections are stated below:

- While projecting cash-flow it is recommended to project the income statement and balance sheet as same gives the complete and holistic picture with all the pieces of projection fitting in, be it revenue, EBIDTA, capital expenditure, interest cost etc. However, in certain cases, if balance sheet and income statement are not available, details of future

capital expenditure and working capital requirements may also suffice along with the revenue and expense projections:

- In Cash Flow Projections since the historical data is used so the first step shall be ensuring that effective due diligence has been carried out for authenticating same. From a valuation perspective, due diligence focuses on varied areas like potential overvalued assets, under-recorded liabilities, non-operating / non-recurring cash inflows, quality of management, tax position and structure and its impact to the future, the robustness of the projected cash flows, and all other matters of significant interest to the acquirer which mainly are the value drivers. There are several examples wherein hidden liabilities like show cause notices received which are yet to be translated into demands, letters of comforts issued to banks etc., are not disclosed in the financial statement.
- The next step is to project cash flow projections during the extraordinary growth period. The length of the period of projections (explicit forecast period) shall be determined based on the following factors:
  - ✓ **Nature of the asset-** where the business is of cyclical nature, explicit forecast period should ordinarily consider one entire cycle (for example cement business).
  - ✓ **Life of the asset-** In case of asset with definite life, explicit period should be for the entire life of the asset (for example, debt instruments, Build Operate Transfer (BOT) road projects).
  - ✓ **Sufficient period**- The forecast period should have a length of time that is sufficient for the asset to achieve stable levels of operating performance.
  - ✓ **Reliable data-** The data that are used for projecting the cash flows, should be reliable cash flow projections should reasonably capture the growth prospects and earnings capability of a company.
  - ✓ What is the basis for future revenue growth and changes in profitability?
  - ✓ How does this compare to the business' historical performance?
  - ✓ Are some of the questions that need to be answered?
- Effects of change in the policy of the company may be taken into account by the valuer if they are known in advance and the effects are capable of

being reliably quantified. These can include changes associated with the utilisation of productive capacity, organisational set-up, product-mix, financing policy. Their treatment in the projection of future profits will depend entirely upon the effect, which in the opinion of the valuer, such changes will have on such future profits.

- An appropriate allowance must be made for capital expenditure in projections. They should not include capital expenditure only for capacity expansion or growth but also for maintenance of the existing operations.
- Working capital requirement forms another important component. Projections should appropriately account for working capital needs of the business in its different phases.
- Income tax outflow also impacts the value of a business and should incorporate any tax benefits like tax holiday, accumulated losses, etc.

6.1.3 Terminal Value

The value of a business should account for the cash flows over the entire life of a company, which can be assumed to be infinite, but in explicit forecast period, cash flows are only estimated over a certain period (generally in range of 3-5 years) hence a terminal value is computed to reflect the value of the cash flows arising after the forecast period till infinity.

Terminal Value represents the present value at the end of explicit forecast period of all subsequent cash flows to the end of the life of the asset or into perpetuity (if the asset has an indefinite life).

There are three commonly used methods for estimating terminal value, they are as under:-

- Gordon (Constant) Growth Model
- Exit Multiple
- Salvage or Liquidation Value

6.1.3.1 Gordon (Constant) Growth Model:

Gordon Growth Model or Perpetual growth model assumes that a business has an infinite life and a stable growth rate of cash flows. Terminal value is derived mathematically by dividing the perpetuity cash flows (cash flows which are expected to grow at a stable pace) with the discount rate as reduced by the stable growth rate.

Terminal Value(n) = Expected FCF(n+1) / (Discount Rate – Expected Growth Rate)

Estimation of the stable growth rate is of great significance because even a minor change in the stable growth rate assumption can have a profound impact on the terminal value and hence the overall business value. Various factors like the size of a company, existing growth rate, competitive landscape, profit reinvestment ratio, etc. have to be kept in mind while estimating the stable growth rate.

If the expected growth rate tends towards the discount rate, terminal value will approach infinity and then turn negative if expected growth rate exceeds the discount rate. The expected growth rate should be constrained (capped) to be less than or equal to the growth rate of the economy in which the business operates. If the growth rate of the company is more than the growth rate of the economy for infinite period (perpetuity), the business will eventually become larger than the economy.

Factors that a valuer may consider while determining the terminal growth rate:

- whether the level of operations beyond explicit forecast period are expected to be significantly different from the level projected in the last year of the explicit forecast period or only a normal growth is expected;
- capacity utilisation at the end of explicit forecast period;
- functional currency in which the projections have been prepared;
- market share;
- product life cycle;
- geographic location of the asset;
- type of cash flows;
- residual life of the asset at the end of the explicit forecast period;
- capital investment required to support the assumed growth rate;
- whether there is future growth potential for the asset beyond the explicit forecast period, or whether the asset is deteriorating in nature; and
- for cyclical assets, the terminal value should consider the cyclical nature of the asset.

6.1.3.2 Exit Multiple:

The estimation of terminal value under this method involves application of market multiple (EV/EBITDA, EV/Sales, etc.) to the perpetuity earnings/ income. This method undercuts the notion of intrinsic value, which is what DCF method is designed to measure. The multiple that is used to estimate the terminal value comes from looking at what peer group companies are trading in the market. Although this approach is comparatively very simple but since multiple has a huge impact on valuation hence it is extremely critical how it is being obtained.

Illustration 9:

A company XYZ ltd having sales of 100 cr per annum is expected to have a terminal value of 300 cr at the end of 10 years hence its terminal value to sales multiple is 3. So an entity ABC ltd in the same industry having revenue of 50 cr will be estimated to have a terminal value of 150 Cr at the end of 10 years.

Hence in this method we are ultimately using the "Market Approach" to determine the single largest component of cash flow in the DCF method, which is an "Income Approach". Hence the end result is a mix of both the approaches.

6.1.3.3 Salvage or Liquidation Value:

This method is used in case we see the firm is not a going concern and might cease operations and go into liquidation. The terminal value is calculated by determining the salvage or realizable value of all the assets less costs to be incurred for disposing such an asset.

Terminal value is estimated to be the liquidation value, which is based on the book value of the assets typically adjusted for inflation but this does not reflect the earning power of the assets. Alternatively, discounting expected cash flows from sale of such assets at an appropriate discount rate would provide a better estimation of liquidation value.

However, liquidation or salvage value is usually lower than the book value and market value. Using this approach to estimate the terminal value will suppress the value of the business.

Terminal Value assumptions:

- Terminal value often constitutes around 50% or more of the business value derived from a DCF and is usually calculated based on the 'Gordon growth formula' which takes into consideration the cash flows of the last

year of the explicit period and grows them by a long-term growth rate. As such an unrealistic assumption associated with the terminal value can profoundly skew the resulting value.

- Increasing this long-term growth has a significant impact on value. If there is an assumption of a growth rate that is higher than the prevalent long-term inflationary estimates, it implies that the business will continue to grow ad infinitum, which has proven to be almost impossible for any company.
- Other issues associated with the terminal value may include the following:
  - ✓ Inadequate long-term maintenance capital expenditure as well as working capital assumptions relative to the terminal growth rate;
  - ✓ Large discrepancy between depreciation and capital expenditure levels;
  - ✓ Lower effective tax rate (tax losses, limited period for tax exemption) which typically will only be applicable for a few years post the discrete period.

6.2 Relief from Royalty Method

This is the most widely resorted method used to determine the value of the brand and certain other intangibles such as IPs, software etc. This method assumes that the said intangible is not owned by the branded business but is licensed from a third party. If the intangible has to be licensed from a third-party, a royalty rate on turnover / profit or other financial metrics will be charged for privilege of using the intangible. Thus, the said intangible value is deemed to be the present value of the royalty payments saved by virtue of owning the intangible. This method is a combination of market and income approach where value is determined on the basis of avoided cost.

The method is popularly employed in the Valuation of intangible assets such as brands, licences and technical know-how, where transacted royalty rates for similar assets are often available. These rates are then adjusted for asset specific risks and returns such as geographical use restrictions, brand recall, etc. to arrive at a suitable royalty rate.

a. Key factors to be considered while using this method are:

- ✓ Revenue Projections
- ✓ Discount Rate
- ✓ Appropriate Royalty Rate

b. Determination of the royalty rate can be a complex process and the following factors, amongst others, should be considered while analysing royalty rates:

(i) **Assets:** For example, a royalty rate paid for a trademark in isolation will likely be lower than one for a bundled asset, including trademarks and product formulations.

(ii) **Rights** (for example, geography, term and usage): All things being equal, a royalty rate paid for the right to use an intangible asset within a limited geography or specific customer channel for a limited time will likely be different than that paid for perpetual rights with unfettered usage.

(iii) **Economic returns**: Typically, assets providing higher returns will warrant higher royalty rates. This issue may arise when comparing royalty rates paid at different points within the supply chain. Returns on wholesale revenues can differ significantly from those on retail revenues.

(iv) **Upfront fees or ongoing cost sharing**: Licensees who are willing to pay an upfront fee or share in future marketing or advertising expenses may be able to negotiate a lower royalty rate.

c. The following are the major steps in deriving a value using the RFR method:

(i) obtain the projected income statement associated with the intangible asset to be valued over the remaining useful life of the said asset. The value of the intangible asset to be valued is determined by first considering projections (of royalty income adjusted with associated expenses like maintenance or marketing) relevant to the intangible asset to be valued for its estimated useful life. Forecasted revenue is royalty computed as a percentage of revenue using an appropriate royalty rate.

(ii) analyse the projected income statement and its underlying assumptions to assess the reasonableness.

(iii) select the appropriate royalty rate based on market-based royalty rates for similar intangible assets (which can be based on royalty rates of similar transactions or can be determined using the profit-split method).

(iv) apply the selected royalty rate to the future income attributable to the said asset: The selected royalty rate is then applied to the cash flows so determined. Royalty rate should consider the features of the intangible

asset to be valued relevant to the profit attributable to the intangible asset to be valued or the observed transactions to determine the royalty rate. Other factors that should be considered to determine the royalty rate are the significance of the intangible asset to be valued to its owner and the expected economic life of the intangible asset with any risks relating to obsolescence.

(v) use the appropriate marginal tax rate or such other appropriate tax rate to arrive at an after-tax royalty savings.

(vi) discount the after-tax royalty savings to arrive at the present value using an appropriate discount rate: The value of the intangible asset to be valued is the present value of the after-t cash flows so computed by using an appropriate risk-adjusted discount rate.

(vii) Tax amortization benefit (TAB), if appropriate considering nature of the asset and purpose of the engagement, should be added to the overall value of the intangible asset.

Illustration 10:

Particulars		**2020**	**2021**	**2022**	**2023**	**2024**	**Terminal**
Net Sales		400	520	624	686	755	770
Projected Royalty Before Tax	9%	36	47	56	62	68	69
Income Tax	30%	11	14	17	19	20	21
Projected After Tax Royalty		25	33	39	43	48	49
Discounting Factor	12%	0.89	0.80	0.71	0.64	0.57	0.51
Growth Rate	2%						
PV of Cash Flows		**23**	**26**	**28**	**27**	**27**	**485**
Sum of PV of Cash Flows	131						
Terminal Value	485						
Fair Value of Intangible Asset	**616**						

6.3 Multi-Period Excess Earnings Method (MEEM)

MEEM is generally used for valuing intangible asset that is leading or the most significant intangible asset out of group of intangible assets being valued.

The Multi-Period Excess Earnings Method is commonly used when a reliable direct measurement of future economic benefits generated by an intangible asset is not possible. However, revenue and earnings to other assets can be readily determined. The method adopts a 'residual approach' for estimating the income that an intangible is expected to generate.

The excess earnings method examines the economic returns contributed by all assets utilized in generating earnings, and then isolates the excess return that is attributed to the specific asset being valued.

MEEM is applied to a wide variety of intangible assets, especially those that are close to the 'core' of the business model. Customer relationship assets, technology, and IPR&D are among the intangible assets which are frequently valued using MEEM.

Under this method, the value of an asset is a function of:

- Projected revenue and earnings generated by the asset;
- Expected economic life of the asset;
- Contributory asset charges that would be paid to the requisite operating assets; and
- A discount rate which reflects risk associated with receiving future cash flows.

Illustration 11:

For Company XYZ ltd, Net operating assets values are Rs 10 Lakhs while net average earning is Rs 2 lakhs. The required rate of return on Net Assets is 10% and capitalization rate for excess earning is 20%.

Calculations

NAV = 10 Lakhs, Expected Return on Assets = 10 Lakhs * 10% = 1 Lakhs

Net Average Earnings = 2 lakhs: Excess Earnings attributable to intangibles = 2lakhs – 1 Lakhs = 1 Lakhs

Value of Excess Earnings = 1 lakhs/20% = 5 Lakhs = Value of Goodwill

Value of Company = 10 lakhs + 5 Lakhs = 15 Lakhs

a. Following are the major steps in deriving a value using the MEEM:

- obtain the projections for the entity or the combined asset group over the remaining useful life of the said intangible asset to be valued from the client or the target to determine the future after-tax cash flows expected to be generated;
- analyse the projections and its underlying assumptions to assess the reasonableness of the cash flows;
- Contributory Asset Charges (CAC) or economic rents to be reduced from the total net after-tax cash flows projected for the entity/combined asset group to obtain the incremental after-tax cash flows attributable to the intangible asset to be valued;
- the CAC represent the charges for the use of an asset or group of assets (e.g., working capital, fixed assets, assembled workforce, other intangibles) based on their respective fair values and should be considered for all assets, excluding goodwill, that contribute to the realisation of cash flows for the intangible asset to be valued;
- discount the incremental after-tax cash flows attributable to the intangible asset to be valued to arrive at the present value using an appropriate discount rate; and
- Tax amortisation benefit, if appropriate.

6.4 With and Without Method (WWM)

Under WWM, the value of the intangible asset to be valued is equal to the present value of the difference between the projected cash flows over the remaining useful life of the asset under the following two scenarios:

- business with all assets in place including the intangible asset to be valued; and
- business with all assets in place except the intangible asset to be valued.

Thus, this method measures the economic contribution of the asset by calculating the net present value of the incremental cash flows to be derived from the use of the asset. This method requires the determination of the future cash flows from the existing business with the asset and the future cash flows from a notional business without the asset. Non-compete arrangements are commonly valued using this method.

a. Following are the major steps in deriving a value using the WWM:

(i) obtain cash flow projections for the business over the remaining useful life of the said asset to be valued under the following two scenarios:

- ✓ business with all assets in place including the intangible asset to be valued; and
- ✓ business with all assets in place except the intangible asset to be valued.

(ii) analyse the projections and its underlying assumptions to assess the reasonableness of the cash flows;

(iii) discount the difference between the projected cash flows under two scenarios to arrive at the present value using an appropriate discount rate; and

(iv) Tax amortisation benefit, if appropriate.

Illustration 12:

Non-Compete Valuation - for Period of 5 Years

INR Mn

Particulars		**2018**	**2019**	**2020**	**2021**	**2022**
Cash flows (with Non-compete)		20	25	35	40	40
Cash flows (without Non-compete)		5	10	20	25	30
Difference in Cash flows		15	15	15	15	10
Discount factor	17.50%	0.85	0.72	0.62	0.52	0.45
PV of Differential Cash Flows		**12.77**	**10.86**	**9.25**	**7.87**	**4.46**
Sum of PV of Differential Cash Flows	45.21					
Probability of competing	50%					
Fair Value of Non-compete	**22.61**					

7. Cost Approach

Cost Approach is a valuation approach that reflects the amount that would be required currently to replace the service capacity of an asset (often referred to as current replacement cost). In certain situations, historical cost of the asset may be considered by the valuer where it has been prescribed by the applicable regulation.

This approach tends to determine the business value on the basis of value of assets of the business. It is specifically useful for asset intensive firms, valuing holding companies as well as distressed entities that are not worth more than their overall net tangible value. The cost approach is based on the inherent assumption that the value of a business or investment can be determined based on the cost to rebuild or replace the business.

a. Limitations of Cost Approach

- It ignores the amount, duration and timing of future economic benefit arising from the asset.
- It does not consider the risk characteristics of the asset nor its performance in a competitive environment.
- Company history, Intangible assets, discounts or contingent liabilities are not accounted for in this approach.
- Cost approach is not the most preferred method for estimating enterprise value of going concerns.

b. Examples of situations where a valuer applies the cost approach

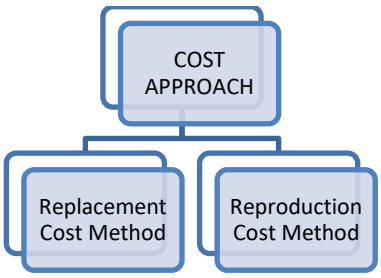
Some Examples of situations where a valuer applies the cost approach are as follows:

- an asset can be quickly recreated with substantially the same utility as the asset to be valued;
- in case where liquidation value is to be determined; or
- income approach and/or market approach cannot be used, for eg companies whose future profits are indeterminable either because of newness, dislocation, losses in business or due to business fluctuations.

Hence cost approach becomes a material factor in valuation of shares where assets are surplus to existing business operations, e.g., excess

land in a manufacturing company. It can also be utilized in valuing holding companies, real estate companies and investment holding companies etc.

c. Commonly used valuation methods under the Cost approach are



i) Replacement Cost Method

Replacement Cost Method involves valuing an asset based on the cost that a market participant shall have to incur to recreate an asset with substantially the same utility (comparable utility) as that of the asset to be valued, adjusted for obsolescence.

ii) Reproduction Cost Method.

Reproduction Cost Method involves valuing an asset based on the cost that a market participant shall have to incur to recreate a replica of the asset to be valued, adjusted for obsolescence.

d. Major steps in deriving a value using the Replacement Cost method/ Reproduction Cost Method:

i) estimate the costs that will be incurred by a market participant for creating an asset with comparable utility as that of the asset to be valued/creating a replica of the asset to be valued.

ii) assess whether there is any loss on account of physical, functional or economic obsolescence in the asset to be valued; and

iii) adjust the obsolescence value, if any as determined above from the total costs estimated above, to arrive at the value of the asset to be valued.

e. Meaning of Obsolescence

The physical properties of the new asset may or may not be similar to the one under valuation, but the asset should bear comparable utility.

Obsolescence includes physical deterioration, functional (technological) and economic obsolescence. The term obsolescence connotes a wider meaning than the term depreciation adopted for financial reporting or tax purposes.

i) **Physical obsolescence** represents the loss in value on account of decreased usefulness of the asset as the useful life expires.

ii) **Functional (technological) obsolescence** represents the loss in value on account of new technological developments; whereby the asset to be valued becomes inefficient due to availability of more efficient replacement assets.

iii) **Economic (external) obsolescence** represents the loss in value on account of decreased usefulness of the asset caused by external economic factors such as change in environmental or other regulations, excess supply, high interest rates, etc.

f. Procedure for Valuation of an entity Under Cost Approach

The steps necessary for valuation using Cost Approach /Underlying Asset basis are:

i) Audit/Examine the Balance Sheet and Other Financial records

ii) Ascertaining value of assets.

iii) Ascertainment of value of liabilities (including contingent liabilities).

Value of Equity Capital = (Value of Assets – Value of Liabilities)/No. of Equity Shares

7.1 Valuation of Assets

The valuation of assets can be carried out using the following approaches, i,e.,

a. Book value.

If valuation of assets is done on the basis of their book value, certain adjustments need to be made. It should be recognised that book value reflects only the historical cost of assets, which in the case of old concerns may be much lower than their economic value. Investments are generally recognised at their market values even where other assets are considered at their book value.

b. Net replacement value.

If a concern is being valued on a going concern basis, net replacement value of the assets gives a fair measure of their current value. However, in this case too intangible assets may need to be valued and added to recognise the fact that individual net replacement value of the assets does not represent the inherent strength of the concern.

c. Net realisable value.

Where a concern is being wound up, its assets are best valued on the basis of their net realisable value. In such cases, the total net realisable value will often be less than that on the basis of a going concern. When a company itself is in liquidation, but its business is being continued, this consideration does not apply. However, a special provision has to be made for cost of liquidation.

In practice while applying Underlying Asset Approach often a combination of book values, replacement values and realisable values is adopted. For example, even where a concern is being valued ongoing concern basis, excess assets may be valued at their net realisable values.

7.1.1 Some special additional considerations for arriving at the value of the various classes of assets and liabilities are given below

i) Fixed Assets

- ✓ Estimate replacement or reproduction cost of Asset
- ✓ Estimate total economic life and effective age;
- ✓ Depreciate replacement/reproduction cost new over economic life to reflect obsolescence related to effective age; and
- ✓ Adjust for additional functional/economic obsolescence.

ii) Investments

Shares and securities that are regularly traded in stock exchange may be valued on the basis of the prices quoted thereat. It must, however, be seen that there is regular trading in those scrips, as an isolated transaction may lead to erroneous results. In cases of quoted shares with isolated transactions and unquoted shares, a secondary valuation may be necessary, if the amount is material. Such unquoted shares and infrequently traded shares may be valued using relative valuation methods or income approach methods of valuation.

iii) Inventory

Depending on the purpose and need for valuation, it could be based on cost with due allowance/adjustment should be made for any obsolete, unusable or unmarketable stocks held by the company or based on current market prices or net realisable value on sale of such inventory.

iv) Sundry Debtors

As debtors are reflected as money receivable, it could be valued considering the time value of recovery and after making appropriate allowance/adjustment credit risk (any bad debts and debts which are doubtful of recovery).

v) Contingent Assets

If the company has made escalation claims, insurance claims or other similar claims, then the possibility of their recovery should be carefully made on a conservative basis, particularly having regard to the time frame in which they are likely to be recovered.

vi) Development Expenses

These arise:

- in the case of a new company, when it is in the process of executing its project; and
- in the case of an old company, when there is an expansion of the existing production lines or diversification for entering into new business.

These should be reviewed and the costs that have been incurred for completing the project should be included.

vii) Intangible assets

Intangibles Assets of a company have also to be considered, no matter whether they are reflected in the books or not. Intangible assets generally consist of goodwill, patents, trademarks, copyrights, etc. Their book value/net replacement cost/net realisable value/fair value, as the case may be, has to be considered. Goodwill is generally inseparable from business, and it can fetch a price only if the business is sold on a going concern basis.

7.2 Valuation of Liabilities

The amount of liabilities reflected in the books of companies may generally be accepted after proper scrutiny. Due consideration should, however, be given

to contingent liabilities if any, necessary, legal opinion should be sought for ascertaining the sustainability of claims or contingent liabilities.

Where liability for taxation has not been provided in the accounts, appropriate amount should be included in the liability. Similar adjustment may be required for proposed dividend.

In case the company has set aside any specific reserves to meet any future losses, it should be ascertained whether they are reserves or provisions. If there is a definite reason to regard them as provisions, they should either be included in liabilities or deducted from the related assets.

While valuing equity shares, the dues of preference shareholders have also to be reduced from the enterprise value to determine the value attributed to the equity share holders. These dues can be ascertained from the terms of issue. Where such shareholders also have a right to participate in the surplus, the applicable amounts of such surplus should be included as liabilities, together with the paid-up value of such preference shares.

8. Adjustments in Valuation

8.1 Discount for Lack of Marketability (DLOM)

DLOM is based on the premise that an asset which is readily marketable commands a higher value than an asset which requires longer period / more efforts to be sold or an asset having restriction on its ability to sell.

An investor will always pay less for an illiquid asset when compared with a similar asset with higher liquidity. Liquidity means ability to buy or sell rapidly in large volumes without incurring significant cost and without affecting the price materially. One way of capturing the cost of illiquidity is by determining the difference between the transaction cost of less liquid assets as compared to more liquid assets.

Transaction costs are the costs to sell an asset or transfer a liability in the principal (or most advantageous) market for the asset that is directly attributable to the disposal of the asset or transfer of liability and which meet both the following criteria:

i) they result directly from and are essential to that transaction;

ii) they would not have been incurred by the entity, had the decision to sell the asset or transfer the liability not been made.

Hence, transaction cost consists of directly attributable costs like brokerage, commission, marketing cost, duties etc. but there are many indirect costs too like market impact cost. Market impact costs are incurred by extracting liquidity from the market in order to acquire or dispose of a large position of the asset. In mathematical terms, it is the percentage mark up/down observed while buying/selling the desired quantity of a stock with reference to the quoted price. If an investor is buying/selling a large block of shares, the stock price will increase/decrease (all else remaining equal) due to change in the demand and supply economics. This phenomenon is more ubiquitous in the case of selling large block of shares due to lack of liquidity at the exchange.

Market impact cost is of two types – temporary and permanent. The temporary component is transitory in nature and reflects the price concession needed to attract counterparties at the time of order execution. The permanent component reflects the information that is transmitted to the market by the buy/sell imbalance.

How much will be the market impact cost for a particular stock/security? The complex models can provide a probable estimate, but actual impact cost depends on market conditions at the time of execution.

Illustration 13:- Market impact cost with real-life examples.

SBI Life Insurance: BNP Paribas Cardif held 22% stake (220mn shares) in SBI Life Insurance as of Dec 31, 2018. BNP Paribas Cardif sold 90mn shares (9.00% stake) in a bulk* deal to CA Emerald Investments (The Carlyle Group) for INR 515/share on Mar 1, 2019 in a deal valued at ~INR 4,635 crores. In addition to the bulk deal on BSE, BNP Paribas Cardif also sold 2.25mn shares in the open market for INR 515/share. The above transactions happened around the market open i.e., 9:15 AM. The shares of SBI Life Insurance had opened at INR 580.35, indicating that the bulk deal happened at a discount of 11.26%. However, the impact was temporary and the share prices recovered during the trading session to close at INR 612.25.

Generally, restrictions on marketability that are only inherent in the asset to be valued shall be considered while valuing the asset. Marketability restrictions that are specific to a particular owner of the asset are not generally considered for discount adjustment.

Determining an appropriate level of DLOM can be a complex and subjective process. Accordingly, the specific nature and characteristics of the asset and the facts and circumstances surrounding the valuation should be considered.

a) The cost of illiquidity on assets value can be considered in the following three ways:

i) Determining the present value of the expected future transactions cost and reducing same from the value of the assets.

ii) Adjusting the required rate of return on an asset to reflect the impact of illiquidity. Hence higher rate of returns will be required for less liquid asset as compared to similar asset with higher liquidity.

iii) Valuing loss of liquidity as an option, where the holder of the illiquid asset is assumed to lose the option to sell the asset when it has a high price.

b) A valuer shall use his professional judgement while applying DLOM and consider the relevant factors including but not limited to-

i) size and nature;

ii) time and costs associated with marketing or for making a public offer;

iii) restrictions on transferability;

iv) history of past transactions;

v) exit rights; or

vi) lack of or limitation to access to information.

c) Some of the various models which could be used for determining DLOM are as under:

i) Restricted stock and private placement studies

ii) Initial Public Offering studies

iii) Synthetic bid-ask spreads

iv) Protective put method of David Chaffe

v) Average strike put option of John Finnerty

8.2 Control Premium and Discount for Lack of Control

Control Premium generally represents the amount paid by acquirer for the benefits it would derive by controlling the acquiree's assets and cash flows.

Control premium would usually be applied in cases where the Investor acquires ability to control operational decision making and/or financial decision

making of the company. In converse situations, DLOC would be applied to derive value of minority shareholding from value of control stake.

But why would a buyer pay more for control?

Business owners consider a controlling interest to have greater value than a minority interest under the premise that the purchaser will be able to effect changes in the business structure and influence overall business policies. Empirical market data corroborates that control premiums observed in successful transactions vary greatly.

Amongst the plethora of factors affecting the magnitude of a given control premium select factors could include:

i) The nature of business opportunities which are currently not being effectively monetized,

ii) Perceived quality of existing management,

iii) The ability of the target company to integrate into the acquirer's business and the probability that management will be able to implement change/new initiatives and,

iv) Competitive landscape of the industry in which the target operates.

Determining an appropriate level of Control Premium and DLOC can be a complex and subjective process. Accordingly, the specific nature and characteristics of the asset and the facts and circumstances surrounding the valuation should be considered.

The rights afforded by 'control' can vary across a broad spectrum depending on transaction specific nuances. Hence, it is important to carefully analyse the magnitude of the stake being acquired in a transaction in conjunction with the rights that the acquirer will possess post transaction, as these factors directly impact the magnitude of the control premium paid.

A valuer shall use his professional judgement while applying control premiums and DLOC, considering the factors such as amount/ extent of control in the asset to be valued, distribution of control of the remaining interest in the subject entity, statutory provision relating to protection of minority shareholders; the shareholder protection restrictions contained in the articles of incorporation, the bye-laws and/or the shareholders' agreement, blockage discount, etc.

8.3 Synergy

Synergies is a concept which indicates that the combining effect of two or more assets or group of assets and liabilities or two or more entities in terms of their value and benefits will be or is likely to be, greater than that of their individual values on a standalone basis. Synergy is a term that is most commonly used in the context of mergers and acquisitions.

Synergy results from incremental benefits that accrue to the acquirer on account of economies of scale or other post-acquisition factors, such as realisation of increased discretionary cash flow or reduced risk in attaining same when two businesses combine.

Synergies may arise in any of the visible components of FCF (operating profit after tax, non-cash deductions, Net working capital, or capital expenditure) or WACC.

i) Revenue synergies – arising from better pricing, cross-selling, marketing or selling similar products, gaining access to new markets or customer segments, sharing distribution channels, reduction or elimination of competition

ii) Cost synergies – Reduction of costs of employees, administrative or factory overheads, elimination of excess facilities, increase in purchasing power

iii) Financial synergies – tax strategies, debt capacity, cash flows with less than perfect correlation

Revenue synergies tend to play out in the product markets and are subject to the market forces beyond the control of the firm. Hence, it is the least predictable and reliable of the three.

Under cost synergies, cost reduction strategies are under the control of the combined entity and hence, the most reliable. In addition, these are recurring in nature as are any economies of scale benefits. Elimination of excess facilities and similar asset reduction strategies have a high degree of reliability but are one-time in nature. These are buyer specific synergies and hence, valued as such.

Under financial synergies, tax strategies are easier to understand and harder to realize considering the limitations imposed on carry forward losses and change in ownership. Similarly, debt capacity synergies are easier to

understand in that they reduce the cost of borrowing or increase the ability to raise debt. However, quantifying this reduced cost of borrowing is not necessarily a synergy. If the individual firms are able to optimize their debt equity ratios on a stand-alone basis and achieve the same result, this is not a synergy. When the synergy is the result of better borrowing power due to a shift in the optimum debt capacity needed to lower WACC, this can be quantified as a synergy. Typically, this result is achieved through diversification or combining two entities with less than perfectly correlated cash flows to achieve a more stable total cash flow.

Chapter 2

Frequently Asked Questions

Q1. Explain the factors that a valuer shall consider while determining the appropriateness of a specific valuation approach and method?

A1. Some of the key factors that a valuer shall consider while determining the appropriateness of a specific valuation approach and method are:

- nature of asset to be valued;
- availability of adequate inputs or information and its reliability;
- strengths and weakness of each valuation approach and method; and
- valuation approach/method considered by market participants.

Q2. Whether a valuer can adopt multiple approaches or methods?

A2. A valuer may consider adopting one distinct valuation approach/method or multiple valuation approaches/methods as may be appropriate to derive a reliable value. When evaluating a value resulting from the use of multiple valuation approaches/methods, a valuer shall consider the reasonableness of the range of values. If the values under different approaches and/or methods significantly differ from each other, it would not be appropriate to derive the final value merely by weightages accorded to differing values. The valuer shall consider key factors to determine whether the chosen approaches and methodologies are appropriate or not.

The valuation approaches and methods shall be selected in a manner which would maximise the use of relevant observable inputs and minimise the use of unobservable inputs. The price information gathered from an active market is generally considered to be a strong indicator of value.

Q3. Specify the cases where an adopted valuation technique can be changed.

A3. The various cases where an adopted valuation technique can be changed are mentioned below:-

- Change in terms or regulations governing the instrument;
- New markets development;
- New information becomes available;
- Information previously used is no longer available;
- Valuation techniques improvement; or
- Market conditions change.

Q4. Give some instances where a valuer may consider using other valuation approaches instead of Market approach or in combination with Market approach.

A4. In some instances, a valuer may consider using other valuation approaches instead of Market approach or in combination with Market approach, such as:

a. where the asset has fewer identical or comparable assets (market comparable);

b. the asset to be valued or its market comparables are not traded in the active market;

c. sufficient information on the comparable transaction(s) is not available;

d. there is no recent transaction either in the asset or in the market comparables; or

e. there are material differences between the asset to be valued and the market comparables, which require significant adjustments.

Q5. Give some instances where a valuer applies the market approach.

A5. The following are some of the instances where a *valuer* applies the market approach:

a. where the asset to be valued or a comparable or identical asset is traded in the active market;

b. there is a recent, orderly transaction in the asset to be valued; or

c. there are recent comparable orderly transactions in identical or comparable asset(s) and information for the same is available and reliable.

Q6. What are the factors that a valuer shall consider while identifying and selecting the market comparables?

A6. While identifying and selecting the market comparables, a valuer shall consider the factors such as-

a. industry to which the asset belongs;

b. geographic area of operations;

c. similar line of business, or similar economic forces that affect the asset being valued; or

d. other parameters such as size (for example - revenue, assets, etc.), stage of life-cycle of the asset, profitability, diversification, etc.

This list is not an exhaustive list, there may be certain other factors which a valuer shall consider while identifying and selecting the market comparables.

Q7. How are the market multiples generally computed?

A7. The market multiples are generally computed on the basis of following inputs:

a. trading prices of market comparables in an active market; and

b. financial metrics such as Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA), Profit After Tax (PAT), Sales, Book Value of assets, etc.

If market participants are using market multiple based on non-financial metrics for valuing an asset, such multiples may also be considered by the valuer in addition to market multiple based on the financial metrics. For example, Enterprise Value (EV) / Tower in case of tower telecom companies, EV/Tonne in case of cement industry, etc.

A valuer shall preferably use several market comparables rather than relying on a single comparable. A valuer shall exercise judgement while selecting the multiple in case where the market multiple computed for each comparable is significantly different from the other.

Q8. Enumerate some of the differences between the asset to be valued and market comparable that the *valuer* may consider while making adjustments to the market multiple.

A8. The following are some of the differences between the asset to be valued and market comparable that the *valuer* may consider while making adjustments to the market multiple:

a. size of the asset;

b. geographic location;

c. stage of life-cycle of the asset;

d. diversification;

e. historical and expected growth; or

f. management profile.

Q9. What does the price paid in comparable transactions generally include?

A9. The price paid in comparable transactions generally includes control premium, except where transaction involves acquisition of non-controlling/minority stake.

Q10. What are the factors that a valuer shall consider while identifying and selecting the market comparables?

A10. While identifying and selecting the comparable transaction, a *valuer* may consider the factors such as-

a. transactions that have been consummated closer to the valuation date are generally more representative of the market conditions prevailing during that time;

b. the selected comparable is an orderly transaction;

c. availability of sufficient information on the transactions to enable the *valuer* to reasonably understand the market comparable and derive the transaction multiple; or

d. availability of information on transaction from reliable sources such as regulatory filings, industry magazines, Merger & Acquisition databases, etc.

Q11. How are the transaction multiples generally computed?

A11. The transaction multiples are generally computed based on the following two inputs:

a. price paid in the comparable transaction; and

b. financial metrics such as EBITDA, PAT, Sales, Book Value, etc of the market comparable.

Even multiples based on non-financial metrics such as EV per room for hotels, EV/Bed for hospitals) can be considered.

A *valuer* shall preferably use multiple comparable transactions of recent past rather than relying on a single transaction.

Q12. What are the factors considered by the Valuer in order to determine the discount rate under the ICAI Valuation Standard – 103, Valuation approaches and methods?

A12. A valuer may consider the following factors while determining the discount rate:

- type of asset being valued such as example debt, preference shares, business, real estate, intangibles, etc.;
- life of the asset such as the risk-free rate used for determining the cost of equity in the CAPM model differs for an asset with a one-year life vs an indefinite life;
- geographic location of the asset;
- currency in which the projections have been prepared;
- type of cashflows;
- risk in achieving the projected cashflows;
- cash flows used for the projections as FCFE needs to be discounted by Cost of Equity whereas FCFF to be discounted using WACC;
- discount the cash flows in the functional currency using a discount rate appropriate for that functional currency; and
- pre-tax cash flows need to be discounted by pre-tax discount rate and post-tax cash flows to be discounted by post-tax discount rate;

Q13. Give some instances where a valuer applies the income approach.

A13. The following are some of the instances where a *valuer* may apply the income approach:

a. where the asset does not have any market comparable or comparable transaction;

b. where the asset has fewer relevant market comparables, or

c. where the asset is an income producing asset for which the future cashflows are available and can reasonably be projected.

Q14. Give some instances where a valuer may consider using other valuation approaches instead of Income approach or in combination with Income approach.

A14. In some instances, a valuer may consider using other valuation approaches instead of income approach or in combination with income approach, such as, where–

a. the asset has not yet started generating income or cash flows, e.g., projects under development;

b. there is significant uncertainty on the amount and timing of income/future cash flows, e.g., start-up companies; or

c. the client does not have access to the information relating to the asset being valued, e.g., minority shareholder may not have access to projections/budgets or growth expectations specific to the business.

Q15. How is Market approach different from Income approach?

A15. Income approach incorporates company-specific estimates to arrive at the firm's intrinsic value while the market approach relies on relative valuation to arrive at the value of a business, based upon how similar assets are priced in the market.

Q16. State the merits and demerits of various multiples under Market/relative Valuation?

A16. The merits and demerits of various multiples under Market/relative Valuation is as under:

i) Enterprise Value/EBIDTA

- EBITDA is the closest proxy in the P&L for cash flow from operations
- It Cannot be used in case of negative EBITDA
- It eliminates the impact of financial leverage like the EV to Sales multiples
- Impacted by accounting policies, except for depreciation policy

ii) Price/Earnings

- It is widely used due to simplicity of computation and easy availability
- One needs to be cautious
- There can be differences in accounting policies and hence unviable
- It cannot be used when earnings are negative
- Considerations

a. Growth phase

b. Stock liquidity and trading volumes

c. Comparable time period

iii) Price to Book Value

Book value of equity is: Difference between book value of assets and book value of liabilities; A relatively intuitive measure of value which can be compared to the market price

- Firms with negative earnings can be evaluated
- Cannot be used when book value is negative
- Book values, like earnings, are affected by accounting policies

Q17. What are the factors on which length of the period of projections is based under the ICAI Valuation Standards?

A17. The length of the period of projections (explicit forecast period) shall be determined based on the following factors:

- **Nature of the asset-** where the business is of cyclical nature, explicit forecast period should ordinarily consider one entire cycle (for example cement business).
- **Life of the asset-** In case of asset with definite life, explicit period should be for the entire life of the asset (for example, debt instruments, Build Operate Transfer (BOT) road projects).
- **Sufficient period-** The forecast period should have a length of time that is sufficient for the asset to achieve stable levels of operating performance.

- **Reliable data-** The data that are used for projecting the cash flows, should be reliable.

Q18. State the cash flows used for projections as per the ICAI Valuation Standards?

A18. The following are the cash flows which are used for the projections:

- **Free Cash Flows to Firm (FCFF):** FCFF refers to cash flows that are available to all the providers of capital, i.e. equity shareholders, preference shareholders and lenders. Therefore, cash flows required to service lenders and preference shareholders such as interest, dividend, repayment of principal amount and even additional fund raising are not considered in the calculation of FCFF.
- **Free Cash Flows to Equity (FCFE):** FCFE refers to cash flows available to equity shareholders and therefore, cash flows after interest, dividend to preference shareholders, principal repayment and additional funds raised from lenders / preference shareholders are considered.

Q19. What are the commonly used discount rates?

A19. The following discount rates are most commonly used depending upon the type of the asset:

- cost of equity;
- weighted average cost of capital;
- Internal Rate of Return('IRR');
- cost of debt; or
- yield.

Q20. What are the factors a valuer may consider while determining the discount rate?

A20. A valuer may consider the following factors while determining the discount rate:

- type of asset being valued such as example debt, preference shares, business, real estate, intangibles, etc.;
- life of the asset such as the risk-free rate used for determining the cost of equity in the CAPM model differs for an asset with a one-year life vs an indefinite life;

- geographic location of the asset;
- currency in which the projections have been prepared;
- type of cashflows;
- risk in achieving the projected cashflows;
- cash flows used for the projections as FCFE needs to be discounted by Cost of Equity whereas FCFF to be discounted using WACC;
- discount the cash flows in the functional currency using a discount rate appropriate for that functional currency; and
- pre-tax cash flows need to be discounted by pre-tax discount rate and post-tax cash flows to be discounted by post-tax discount rate;

A valuer shall include where appropriate risk adjustments that a market participant shall expect as compensation for uncertainty inherent in the cashflows.

Q21. How to calculate Terminal Value in case of indefinite or very long useful life of the asset?

A21. In case of assets having indefinite or very long useful life, it is not practical to project the cash flows for such indefinite or long periods. Therefore, the valuer needs to determine the terminal value to capture the value of the asset at the end of explicit forecast period.

Q22. What are the factors a valuer may consider while determining the terminal growth rate?

A22. Some of the factors that a valuer may consider while determining the terminal growth rate:

- whether the level of operations beyond explicit forecast period is expected to be significantly different from the level projected in the last year of the explicit forecast period or only a normal growth is expected;
- capacity utilisation at the end of explicit forecast period;
- functional currency in which the projections have been prepared;
- market share;
- product lifecycle;
- geographic location of the asset;

- type of cashflows;
- residual life of the asset at the end of the explicit forecast period;
- capital investment required to support the assumed growth rate;
- whether there is future growth potential for the asset beyond the explicit forecast period, or whether the asset is deteriorating in nature; and
- for cyclical assets, the terminal value should consider the cyclical nature of the asset.

Q23. Give some instances where a valuer applies the cost approach.

A23. Examples of situations where a *valuer* applies the cost approach are:

- an asset can be quickly recreated with substantially the same utility as the asset to be valued;
- in case where liquidation value is to be determined; or
- income approach and/or market approach cannot be used.

Q24. Give some instances where a valuer may consider using other valuation approaches instead of cost approach or in combination with cost approach.

A24. In some instances, the *valuer* may consider using other valuation approaches in combination with cost approach, such as:

- the asset has not yet started generating income / cash flows (directly or indirectly);
- an asset of substantially the same utility as the asset to be valued can be created but there are regulatory or legal restrictions and involves significant time for recreation; or
- the asset was recently created.

Q25. Differentiate between Replacement Cost Method and Reproduction Cost Method?

A25. **Replacement Cost Method** involves valuing an asset based on the cost that a market participant shall have to incur to recreate an asset with substantially the same utility (comparable utility) as that of the asset to be valued, adjusted for obsolescence.

During the process of deriving the value, it estimates the costs that will be incurred by a market participant for creating an asset with comparable utility as that of the asset to be valued.

Reproduction Cost Method involves valuing an asset based on the cost that a market participant shall have to incur to recreate a replica of the asset to be valued, adjusted for obsolescence.

During the process of deriving the value, it estimates the costs that will be incurred by a market participant for creating a replica of the asset to be valued.

Q26. Mention the common types of Obsolescence under the Cost approach under Valuation approaches and methods standard.

A26. The following are common types of obsolescence-

- Physical obsolescence represents the loss in value on account of decreased usefulness of the asset as the useful life expires.
- Functional (technological) obsolescence represents the loss in value on account of new technological developments; whereby the asset to be valued becomes inefficient due to availability of more efficient replacement assets.
- Economic (external) obsolescence represents the loss in value on account of decreased usefulness of the asset caused by external economic factors such as change in environmental or other regulations, excess supply, high interest rates, etc.

Q27. What does Obsolescence include?

A27. The physical properties of the new asset may or may not be similar to the one under valuation, but the former asset should bear comparable utility. Obsolescence includes physical deterioration, functional (technological) and economic obsolescence. The term obsolescence connotes a wider meaning than the term depreciation adopted for financial reporting or tax purposes.

Q28. Whether a valuer can rely on the work of experts?

A28. A valuer can rely on the work of experts subject to the followings:

- A valuer shall evaluate the skills, qualification, and experience of the other expert in relation to the subject matter of his valuation.

- A valuer must determine that the expert has sufficient resources to perform the work in a specified time frame and also explore the relationship which shall not give rise to the conflict of interest.
- If the work of any third party expert is to be relied upon in the valuation assignment, the description of such services to be provided by the third party expert and the extent of reliance placed by the valuer on the expert's work shall be documented in the engagement letter. The engagement letter should document that the third party expert is solely responsible for their scope of work, assumptions and conclusions.
- A valuer shall specifically disclose the nature of work done and give sufficient disclosure about reliance placed by him on the work of the third party expert in the valuation report.
- As per Clause 9 of the Model Code of Conduct of Companies (Registered Valuers and Valuation) Rules, 2017, it has been provided that in the preparation of a valuation report, the valuer shall not disclaim liability for his/its expertise or deny his/its duty of care, except to the extent that the assumptions are based on statements of fact provided by the company or its auditors or consultants or information available in public domain and not generated by the valuer.

Q29. Explain treatment of non-operating assets and inter-company investments.

A29. Apart from operating assets, entities hold non-operating assets. Such assets should be valued based on their realisable values net of costs and outgoes and added to the value arrived under the various approaches to derive the value for ownership interest.

Inter-company adjustments or substantial cross holdings between companies in the business valuations should be considered at fair value.

Q30. What is the difference between the monetary asset and non-monetary assets?

A30. A monetary asset is one where assets to be received are in fixed or determinable amounts of money whereas a non-monetary asset whose value can change overtime in response to economic conditions and assets to be received are not in fixed or determinable amounts of money.

Q31. What are "off balance sheet" items?

A31. Off-balance sheet (OBS) items are assets or liabilities that do not appear on a company's balance sheet. Although not recorded on the balance sheet, they are still assets and liabilities of the company. Off- balance sheet items are typically those not owned by or are a direct obligation of the company. It is necessary for the valuer to value the off balance sheet items to arrive at a fair value of the business as a whole.

For example, when loans are securitized and sold off as investments, the secured debt is often kept off the bank's books. An operating lease is one of the most common off-balance items.

Q32. What is economic value added?

A32. EVA is an estimate of the amount by which earnings exceed or fall short of the required rate of return for shareholders or lenders at comparable risk. It determines the value created for the shareholders of a company.

Q33. State by means of various examples where EVA can be used.

A33. EVA is used for following purposes:

- Performance management
- Determination of bonuses.
- Communication with shareholders and investors.
- Capital budgeting.
- Corporate valuation.
- Analysis of equities.

Q34. What do you understand by the term Participants Specific Value?

A34. "Participant specific value" is the estimated value of an asset or liability considering specific advantages or disadvantages of either of the owner or identified acquirer or identified participants.

Participant specific value may be measured for an existing owner or for an identified acquirer or for a transaction between two identified parties and consider factors which are specific to such party(ies) and which may not be applicable to market participants in general. For example:

(a) participant specific value for a potential acquirer in connection with acquisition of a manufacturing facility will consider aspects such as

location specific advantage or synergies which may not be available to market participants in general.

(b) participant specific value for transfer of 2% stake by a minority shareholder to a shareholder holding 49% stake will consider aspects such as minority discount and control premium.

Q35. What are the factors to be taken into consideration to determine the "Participants Specific Value"?

The factors to be taken into consideration to determine the" Participants Specific Value" are as follows:-

- the respective economic needs and abilities of the parties to the transaction or event
- risk aversion or tolerance
- the motivation of the parties
- business strategies and business plans
- synergies and relationships
- strengths and weaknesses of the target business
- form of the organization of the target business
- estimates of future cash flows or earnings
- tax advantages
- synergy to other products
- other strategic advantages

Chapter 3

Important Formulas and MS Excel Functions

1. Time value of money formulas

a)

$$FV = PV \times \left(1 + \frac{i}{n}\right)^{t \times n}$$

wherein;

FV = Future value of money (after earning interest)

PV = Present value of money

i = interest rate

n = number of compounding periods per year (investment period / loan period)

t = number of years (the time period for which money is held)

b) Compounded Annual Growth Rate

$$CAGR = \left(\frac{V_t}{V_0}\right)^{1/t} - 1$$

Wherein

Vt = Value at the end

Vo = Value at the beginning

t = no. Of years

2. Cost of Capital Formula

a) Cost of Debt (Kd) = YTM × (1 − t)

b) Cost of preference Share = $Kp = YTM$

c) Cost of Equity as per CAPM = $Ke = Rf + (Rm - Rf) \times \beta$

e) Cost of Equity as per DDM = Ke = (D1/P0)+g

d) Weighted average cost of capital

$WACC$ = [$(Kd \times D)$+$(Ke \times E)$]/$(D+E)$

Here:

YTM = yield of maturity (in the absence of information it is simply interest rate or dividend rate)

t = rate of income tax

g = expected growth rate

D1 = expected dividend next year

P0 = Current Price

Rf = risk free rate of return (e.g., yield of government of India bonds)

Rm = return on market portfolio (e.g., return on sensex or nifty)

$Rm - Rf$ = risk premium on market portfolio (i.e., excess return over govt. bonds)

β = risk index = regression coefficient

3. Terminal Value as per Gordons Growth Model

$$P_n = \frac{FCF_{n+1}}{r - g}$$

P_n = Terminal Value at the end of nth year

FCF_{n+1}= Free cash flow at the end of n+1 year

r= Discount Rate

g= Expected Growth Rate

4. Cash Flow Formulas

Free Cash For Equity = Net Income or Profit After Tax – Dividend on preference shares+ Depreciation & Amortization – Capital Expenditure – Increase in Non-Cash Working Capital – Net Repayment of Debt – Net repayment of preference shares

Free Cash For Firm = Earnings Before Interest and Tax * (1-tax rate) + Depreciation – Capital Expenditure – Increase in Non-Cash Working Capital

5. MS Excel functions

PV = present value of single amount or of annuity

FV = future value of single amount or of annuity

NPER = number of periods

PMT = amount of one instalment (here instalment means series of equal amounts receivable at equal time gaps)

RATE = rate of interest (people also call it discounting rate)

NPV = net present value (it may be used to calculate SUM of present values of uneven series)

SLOPE = Beta Calculations

Chapter 4
Illustrations

Q1. For below returns calculate Compounded Annual Growth Rate at the end of 7 years if Rs. 500Mn Invested

Year	Value at the Beginning of Year	Value at the End of Year
	X	Y
1.	500	550
2.	550	594
3.	594	683
4.	683	751
5.	751	819
6.	819	901
7.	901	1,036

Ans: The Annual Return will be calculated as under and vary between 8%-15%

Year	Value at the Beginning of Year	Value at the End of Year
	X	Y
1.	500	550
2.	550	594
3.	594	683
4.	683	751
5.	751	819
6.	819	901
7.	901	1,036

$$CAGR = \left(\frac{V_t}{V_0}\right)^{1/t} - 1 = \left(\frac{1036}{500}\right)^{\frac{1}{7}} - 1 = 10.97\%$$

Q2. For XYZ Ltd. Debt of the company is Rs 500 Mn while Market Value of Equity is Rs 200 Mn. The Industry unlevered beta is 0.75 and the marginal tax rate is 30%. Calculate levered beta for XYZ Ltd.

Ans.

Debt	= Rs 500Mn
Market Value of Equity	= Rs 200Mn
Tax Rate	= 30%
Unlevered Beta of Industry	= 0.75
Debt/Equity Ratio	= 500/200 = 2.5
Leveraged Beta for XYZ Ltd	= Unlevered Beta [1+(1-MTR)(D/E ratio)]
	= 0.75*[1+(1-.30)(2.5)]
	= 2.06

Q3. The XYZ Co Ltd. in the year 2019-20 earned INR 10 million before interest and taxes with total revenues of INR 50 million. in the same year the company Invested in fixed capital to the tune of Rs.10 million, depreciation was 5 million and working capital investment = 3 million.

XYZ Co. Ltd expects EBIT, investment in fixed assets, working capital, depreciation and sales to grow at 10% per year for next 5 years.

After 5 years, the growth in sales, EBIT and working capital investment will decline to stable 5% per year and investments in fixed capital and depreciation will offset each other.

Tax rate= 30%,

WACC= 11% during the high growth stage and 8% during stable stage

a) Calculate the Free Cash Flow to the Firm in Year 6

b) Calculate the Terminal Value at the end of Year 5

Ans: First plot the Free Cash flow to the Firm (FCFF) for next five years and on the basis of same predict the FCFF for 6th Year:

FCFF= EBIT(1-t) + Dep - FCInv – WCInv

Rs. In Mn

Year	0	1	2	3	4	5	6
Sales	50.00	55.00	60.50	66.55	73.21	80.53	84.55
EBIT	10.00	11.00	12.10	13.31	14.64	16.11	16.91
EBIT(1-T)	7.00	7.70	8.47	9.32	10.25	11.27	11.84
Dep	5.00	5.50	6.05	6.66	7.32	8.05	
FCInv	5.00	5.50	6.05	6.66	7.32	8.05	
WCInv	3.00	3.30	3.63	3.99	4.39	4.83	5.07
FCFF	4.00	4.40	4.84	5.32	5.86	6.44	6.76

Terminal Value Year 5 = FCFF in stable period/(discount rate- Growth during Stable period)

= Rs 6.76/(8%-5%) Mn

= Rs 225.47 Mn

Q4. A bond is expected to give, Rs.5000, Rs.6000, Rs.7000 & Rs.8000 from year 1-4 respectively. Calculate sum of present values of all these cash flows @10% p.a.

Ans: sum of present values of all these cash flows is as under

Year	Amount Generated	Discounting Factor @ 10%	PV @10%
	A	b	a*b
1	5000	0.91	4,545
2	6000	0.83	4,959
3	7000	0.75	5,259
4	8000	0.68	5,464
			20,227

Hence the fair value of the Bond can be well be considered at NPV i.e. Rs 20,227/-

Q5 Calculate fair value of a bond having face value of Rs.1000, maturity of 5 years and coupon of Rs.120 per annum, if the desired rate of return of investors is 14%. If the bond is currently traded in the market at par, how would you react?

Ans:

Year	Amount Generated	Discounting Factor @ 14%	PV @14%
	a	B	a*b
1	120	0.88	₹ 105.26
2	120	0.77	₹ 92.34
3	120	0.67	₹ 81.00
4	120	0.59	₹ 71.05
5	1120	0.52	₹ 581.69
			₹ 931.34

The fair value of the bond is hence Rs. 931/- @ 14% rate of return, thus at face value of Rs 1000/- it is overvalued.

Q6 Calculate current fair value of equity share:

Face Value = Rs. 10 ;

Dividend expected at the end of first year = Rs. 4 per share Growth in dividend forever = 10% p.a.

Expectation of equity shareholders = 20% p.a.

Ans: As per DDM approach

Fair Value of Equity = Dividend at the end of Year1/ (Expected rate of return – Growth in dividend)

Fair Value of Equity = 4/(20%-10%) = Rs. 40/-

Q7 An unlisted company has debt equity ratio of 2:3, while its comparable listed company has debt equity ratio of 2:1 and equity beta of 1.5. If the tax rate is 30%, calculate beta of equity for unlisted company. Also calculates its cost of equity if risk free rate is 10%, while market rate of return is 15%.

Ans: Leveraged Beta = Unlevered Beta [1+(1-MTR)(D/E ratio)]

Hence for Listed Company

1.5 = Unl Beta*[1+(1-.30)*(2/1)]

Unl Beta for listed Company = 0.625

Hence for Unlisted Company

Levered Beta = 0.625*[1+(1-0.30)*(2/3)]

= 0.916

Q8 It is January 2009. A company has given dividend for year 2008 equal to Rs.0.175 per shares. Growth in dividend expected for next eight years is 14% and thereafter it will be 7% forever. Return on risk free securities is 4.1% while risk premium on market portfolio is 5.5% beta of the security is 0.84. Retention ratio is 70% while the price earning ratio at the end of 8 years is expected to be 17 times. Answer following questions:

1) Terminal value of the share as per market multiple methods is?

   1) Rs.30.27

   2) Rs.28.33

   3) Rs.26.23

   4) Rs.24.81

2) Current Value of the share applying dividend growth model is?

   1) Rs.15.48

   2) Rs.17.66

   3) Rs.23.11

   4) Rs.16.38

3) Current Value of the share when you apply market multiple method for terminal value is?

   1) Rs.16.24

   2) Rs.18.98

   3) Rs.17.25

4) Rs.17.66

4) What percentage of value comes from terminal value under dividend growth model?

1) 90%

2) 10%

3) 50%

4) 70%

Ans: Cost of Equity(Ke) under CAPM = Risk Free Rate of Return (Rf) + Beta (β) X Risk Premium (Rp)

= 4.1 + 5.5*0.84

= 8.72%

Year	Dividend	Discount Factor	NPV
	A	b	a*b
1	0.20	0.92	0.18
2	0.23	0.85	0.19
3	0.26	0.78	0.20
4	0.30	0.72	0.21
5	0.34	0.66	0.22
5	0.38	0.61	0.23
7	0.44	0.56	0.24
8	0.50	0.51	0.26
NPV			**1.74**

1) Terminal Value at the end of 8 years using Market Multiple Approach

PE Ratio = Market Price/ Earnings per share

MP = PE* EPS

EPS = 0.50/0.30 = 1.66

MPS = 17*1.66 = 28.33

2) Terminal Value at the end of 8th Year as per DDM

= Dividend pay-out post 8th year/ [Cost of Equity – Growth Rate]

= (0.50*1.07)/(8.72%-7%)

= Rs. 31.06

Present Value of P8 Terminal Value = 31.06*0.51 = Rs.15.91

Current Value of the share applying dividend growth model = Rs. 15.91 + Rs. 1.74

= Rs. 17.65

3) Present Value of Terminal Value as per Market Multiple = Rs 28.33*.51 = Rs 14.52

Current Value of the share applying dividend growth model = Rs. 14.51+Rs. 1.74

= Rs. 16.26/-

4) % of value from Terminal value under DDM = Rs. 15.91/Rs.17.65 = 90%

Q9 Given that FCFF is 185000

Interest on long term loan = 30,000

Interest on short term loan = 20,000

Depreciation = 50000

Issue of preference shares = Rs.300000

Repayment of Loan = Rs.100000

Repayment of other Debt = 300000

Purchase of fixed assets = 70000

Decrease in WC = 30000;

Tax = 30%

Calculate FCFE

Ans i) FCFE = FCFF – Interest (1-t) – Repay loan + issue preference.

=1,85,000-(50,000*.7)-3,00,000+3,00,000

= Rs. 3,50,000/-

ii) FCFE = Net Income + Deprecation – repay loan + issue preference – Fixed assets + Decrease in Working Capital

= 1,40,000 + 50,000 – 1,00,000+ 3,00,000-70,000+ 30000

= 3,50,000/-

Q10 For Company Oxford Ltd. following is the projections for next five years.

Number of Shares	10,00,000	
Market Price/ Share (Rs.) (observed from the market)	991.810023	
Market Capitalisation of Company (Rs.)	99,18,10,023	
Following are the forecast for next 5 years		
	Net Income (Rs. Million)	Dividends (Rs. Million)
Year 1	100	1.75
Year 2	114	3.5
Year 3	126	3.5
Year 4	131	4
Year 5	133	4.5
Growth Rate beyond forecast period	3%	
Cost of Equity (Ke) is 12%		
Book Value of Equity at the Valuation Date	30,00,00,000	

Calculate Equity Value Using both Residual Income Method and Dividend Distribution Method

Ans: We will first re-write the above data set as follows:

(Rs. Million)

	Particulars	**Years**				
		1	**2**	**3**	**4**	**5**
A	Income	100	114	126	131	133
B	Dividend	1.75	3.5	3.5	4	4.5
C	Book Value at the Beginning	300	398	508.75	631.25	758.25
D	Book Value at the End of Year (D = C + B - A)	398.25	509	631.25	758.25	886.75
E	Growth Rate beyond forecast period (g)	3%				
F	Cost of Equity (Ke) - Trial rate	12%				

As per Income Based Method - Residual Income Method (RIM)

Income Based Method - Residual Income Method (RIM)

(Rs. Million)

		Years					
	Particulars	**1**	**2**	**3**	**4**	**5**	**Terminal Value**
A	Residual Income = Income - (Ke) x BV(beginning)						
	i) Income (NI)	100	114	126	131	133	
	ii) BV (beginning)	300	398	509	631	758	
	iii) Ke x BV (beginning)	36	48	61	76	91	

	iv) Residual Income (RI) (i.e. (i) - (iii)	**64**	**66**	**65**	**55**	**42**	
B	NI of 6th Year = NI of 5th Year x (1+g)						137
C	BV (beginning of 6th year) = BV (end of 5th Year)						887
D	**RI (of 6th Year) = NI of 6th Year = Ke x BV above**						**31**
E	Discounting Factor	0.89	0.80	0.71	0.64	0.57	
F	**Present Value (A(iv) x E)**	**57.14**	**52.78**	**46.23**	**35.11**	**23.84**	**192.79**
G	Terminal Value = RI/(ke-g) x Disc. End of 5th Year						
H	*Please note - RI of 6th Year is not equal to RI of 5th Year x (1+g)*						
I	Sum of PV (RI)	408					
J	BV	300					
K	**Hence, Equity Value (K = I + J)**	**708**					

Cash Flow Based Model - Dividend Distribution Model (DDM)

(Rs. Million)

		Years					
	Particulars	**1**	**2**	**3**	**4**	**5**	**Terminal Value**
A	BV of Year 6 = BV of Year 5 x (1+g)						913.35
B	Dividends	1.75	3.50	3.50	4.00	4.50	
	Dividend of Year 6 = NI of Year 6 - (BV of Year 6 - BV of Year 5)						
	i) NI of Year 6 (check previous table (B)						136.99
	ii) BV of Year 6						913.35
	iii) BV of Year 5 (check data set table (D))						886.75
	iv) Hence NI of Year 6 = (i) - [(ii) - (iii)]						110.39
C	Terminal Value = (iv) x (ke-g)						1,226.53
D	Discounting Factor	0.89	0.80	0.71	0.64	0.57	
E	PV (Dividends)	1.56	2.79	2.49	2.54	2.55	695.96
F	**Hence, Equity Value**	**707.9**					

	Comparison	Equity Value (Rs. Million)
A	RIM Approach	707.90
B	DDM Approach	707.90
C	Variance (C) = (A) - (B)	-

Q11. Suppose as a valuer you're appointed by a company to recommend whether the company should invest in Project A or Project B. Each of the two projects has been proposed by the technical team, but the company can only invest in one of them. The company's WACC is 9%.

Project A starts with an initial investment to make a product with a growing income stream until the product becomes obsolete and is terminated. While Project B starts with an initial investment to make a different product that is expected to be sold in five years to some other company for a large payoff.

The expected future cash flow from the two projects is as under

Project A		Project B	
Year	**Cash Flow**	**Year**	**Cash Flow**
0	**Initial Investment - Rs 3 Crore**	**0**	**Initial Investment - Rs 3 Crore**
1	**Net Inflow - Rs 2 crore**	**1**	**Net Inflow – 0**
2	**Net Inflow - Rs 4 crore**	**2**	**Net Inflow – 0**
3	**Net Inflow - Rs 4 crore**	**3**	**Net Inflow – 0**
4	**Net Inflow - Rs 2 crore**	**4**	**Net Inflow – 0**
5	**Project Closure**	**5**	**14 Crore - Net Inflow**

Which project, assuming both carry the same risk, should the financial analyst recommend to her manager?

First, let's analyse the discounted cash flows for both the projects

Rs in Crore

Project A			Project B		
Year	**Cash Flow**	**Discounted Cash Flow**	**Year**	**Cash Flow**	**Discounted Cash Flow**
0	-3	-3.00	0	-3.00	-3.00
1	2	1.83	1	-	-
2	4	3.37	2	-	-
3	4	3.09	3	-	-
4	2	1.42	4	-	-
5	0	-	5	14.00	9.10
Net Present Value		**6.71**	**Net Present Value**		**6.10**

We can conclude that from a financial standpoint, Project A is better, since it has a higher net present value. Even though Project B will bring in 14 crores` in cash over its lifetime and Project A will only bring in 12 crore, Project A is more valuable because of the earlier timing of those expected cash flows.

Chapter 5
Case Studies

Case Study 1: - Case study of WhatsApp acquisition by Facebook

Deal details

WhatsApp was acquired by Facebook in 2014 at a whopping $ 19 Billion. $15 Billion in Facebook stocks and $4 Billion in cash.

User base of WhatsApp at the time of acquisition ~ 450 Million with ~70% active daily on this platform.

It stated that its plan was to charge 99 cents per year for each subscriber, after the initial first year, though this had not been put to use.

Valuation by cash flow approach

Based on an article by Mr. Ashwath Damodaran, valuation of $ 19 Billion considering the assumptions of

- Implied return on equity (at higher risk) – 10% (US Market - Risk free rate 3% + Equity Risk Premium 5% + Additional Risk 2%)
- Valuation for the deal - $19 Billion
- Waiting period of 5 years to reach steady state.

Translates to a pre-tax income of $4.37 Billion!!

This really means that to consider such a valuation and the derived steady state pre-tax income, at say even a 50% pre-tax cost outflow from gross revenue and $0.99 per annum revenue changed to $5 per annum, requires 1.75 Bn users for WhatsApp to generate this kind of a revenue stream! A near 4-fold increase in current number of users and charge of $5 per annum per user.

Number of users required	Revenue per use ($ p.a.)			
Pre-tax costs to revenue	0.99	2.00	5.00	10.00
30%	6.31	3.12	1.25	0.62
40%	7.36	3.64	1.46	0.73
50%	8.83	4.37	1.75	0.87
60%	11.04	5.46	2.19	1.09
70%	14.72	7.29	2.91	1.46

This is a very aggressive consideration, if the approach to valuation was from this angle in this given instance.

Valuation by market approach

If the same was viewed from a different perspective of the trader's viewpoint, it can be seen that in 2014, the enterprise value and EV / User were as under:

Company	EV($ Mn)	User (Mn)	EV / User
Netflix	25830	44	577
Groupon	5880	43	137
Facebook	160090	1230	130
Zynga	2930	27	109
Open Table	1500	14	107
Pandora	7150	73	98
Twitter	18790	243	77
LinkedIn	19980	277	72
Yelp	5790	120	48
WhatsApp	19000	450	42

At that time, the EV/EBIDTA comparison for these entities showed that though there is a correlation, ranged from 23 to 2000! This meant that the return at even EBIDTA level expectation was below 5%, which was lower than even the risk-free rate at that time. Thus, the market seems to be banking very heavily on the future in respect of these companies.

The review also revealed that

- Number of users is a dominant driver in this industry
- Measure of depth of engagement has an effect on the valuation
- Predictable revenue models are higher priced
- Making bottom line money seems to be secondary at least as at present.

So, from a trader's perspective, if WhatsApp acquisition even led to increase in Facebook users by 1/3rd of the WhatsApp's then user base, then with the $130 EV/User of Facebook, the deal was well worth the outlay for the acquisition.

In Conclusion

Thus, when the approach to valuation is changed, the whole deal looks to be different and a game changer.

Also, for Facebook, this deal was not a very big risk. This was surely a big deal, but not a killer. Its own market cap was $ 180 Billion at that time and as of Dec 2013, had $11 B in liquid funds and its cash from operations in one year of 2013 itself was $4 Billion, which was the cash component of the deal with the rest being paid by way of Facebook stock only.

Thus, the approach to valuation has to be in sync with the value drivers in the given context of industry, company and business model.

As an interesting finding, the user base has indeed grown manifold and is presently in the region of 2000 Mn WhatsApp users and 2450 Mn Facebook users.

Case Study 2: - The Hindustan Zinc Case

Case Study of how strategic thinking can alter projections and thus valuation.

The deal background

Vedanta group picked up Hindustan Zinc by paying Rs. 40.50 per share from the Government sometime in the early 2000s.

Purchase occurred when Metal prices were at rock bottom and the Market felt it was a significantly high price to have paid for the share.

The share price thereafter went upto about Rs. 1,000 in less than a decade.

What may have been the sellers view?

- Low margins due to international pressure on prices
- Viability of Zinc as a metal in doubt – global off-take drops
- Inability to incur the huge CAPEX required for the plant
- Employee rationalisation across the units were not feasible

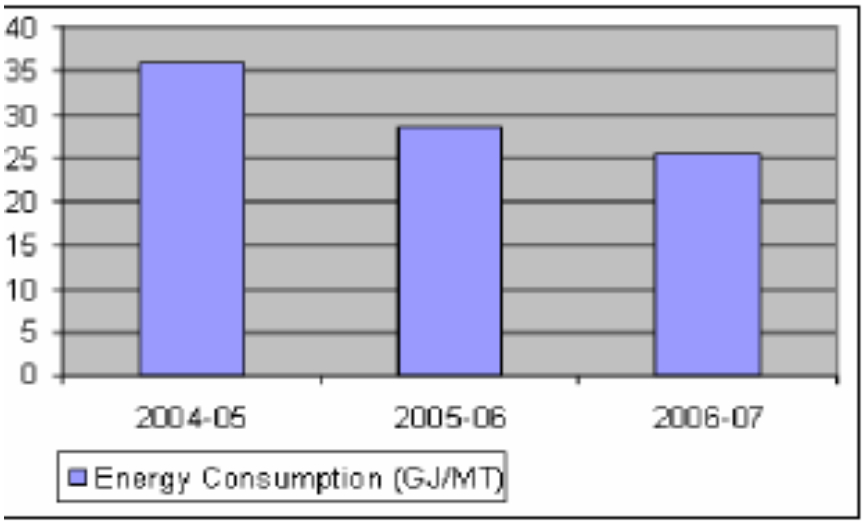
What may have been acquirers' view?

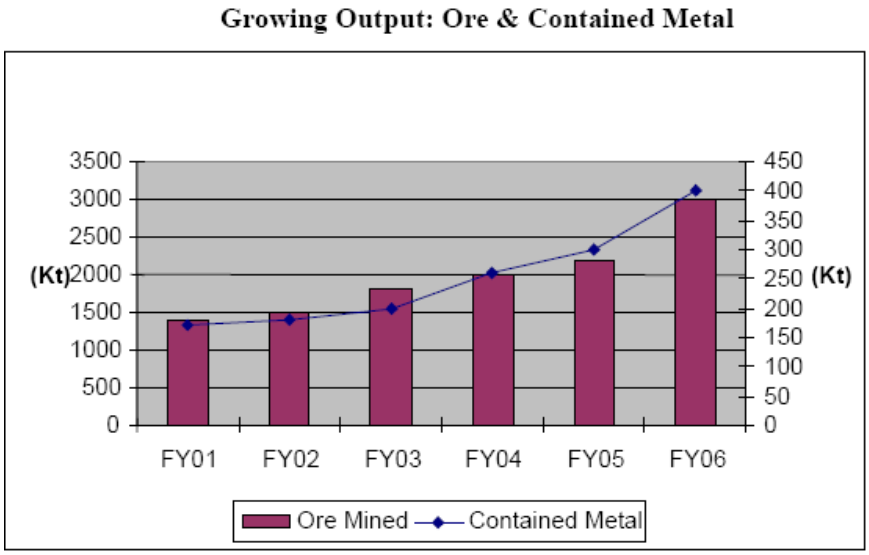
- Potential to expand capacities
- Vision of a captive power plant
- Back end tied with captive mines for supplies for over 35 years to the smelters!
- Potential to squeeze out the efficiencies
- Of course,… the company was also helped by growing international price for Zinc in the following years

How the Company fared post take over

Particulars	Units	2001-02	2005-06
Production	Metric Tonnes (MT)	181000	450000
No. of Employees	-	8355	6055
Production per Employee	Metric Tonnes (MT)	21.66	74.32

Total Salaries & Wages	Rs. Million	2790	2055.9
Salaries & Wages per Metric Tonne	Rs./MT	15254	4568.67
Total cost per Metric Tonne	Rs./MT	55746	32422
Salaries & Wages	%of total cost	27.36	14.09
Salary per unit Production per Employee	Rs.	128.79	27.66





In the period from 2001-02 to 2005-6

- Production grew by ~2.5 times
- No. of employees reduced by ~25%
- Employee productivity trebled
- Total cost per MT dropped by ~40%
- Energy consumption per MT dropped by ~30%
- The company also leveraged debt from being near zero to about 30% by 2004.

In hindsight, the changes which have been effected are visible and identifiable, but at the time of the business transfer the two parties (seller and buyer) have differing views. In the instant case, the value perception of the Government and the Acquirer may have been as deliberated above reflecting the different value perceptions in this regard. The way the market (at that time) reacted negatively to this deal (considering this deal to have been priced high) reflects that even the market did not perceive the value proposition which could justify a higher price than what would have been arrived at in a routine approach.

Case study 3 – The theory of relative multiples

In 2008 a valuation engagement was being considered for a BPO business entity.

Multiples taken from Bloomberg revealed the following:

Name	Market Cap	Enterprise Value)	EV /Revenue			EV / EBITD			P/E		
	(USD Mn)	(USD Mn	Mar 08	Mar 09E	Mar 10E	Mar 08	Mar 09E	Mar 10E	Mar 08	Mar 09E	Mar 10E
Solutions Ltd	255	491	1.9x	1.4x	1.1x	10.0x	7.9x	6.5x	9.3x	9.1x	5.7x
	187	420	1.7x	1.0x	1.0x	7.8x	5.1x	3.9x	5.1x	3.5x	2.7x
	816	797	1.6x	1.2x	0.9x	9.1x	6.8x	5.4x	15.4x	11.1x	9.1x
Ltd	417	349	0.8x	0.8x	0.6x	8.0x	5.0x	3.8x	43.9x	30.2x	16.3x
Holdings Ltd	253	156	0.6x	0.6x	0.5x	3.7x	3.6x	3.2x	9.0x	11.4x	9.7x
	2,223	2,046	1.9x	1.5x	1.2x	11.7x	6.9x	5.7x	29.6x	15.4x	12.6x
			1.4x	**1.1x**	**0.9x**	**8.4x**	**5.9x**	**4.7x**	**18.7x**	**13.5x**	**9.4x**
			1.5x	**1.1x**	**0.9x**	**8.7x**	**6.0x**	**4.7x**	**15.8x**	**11.7x**	**9.3x**
Source : - Bloomberg											
Market Data as on 30-Sep-08											
INR/USD Exchange rate assumed at 48.1											

What this essentially depicts is a relationship between these ratios for the given industry (or company) where the set is of comparable entities. The business structure of the BPO business which can be deciphered from this is as under:

Particulars	Market Multiple	Business Structure
EV / Revenue	1.1	100%
EV / EBIDTA	5.9	19%
P/E Ratio	13.5	8%

What this in other words denotes is the relationship between these multiples and thereby reflecting a business model which is appropriate for that industry.

This, however vary from company to company and at different points of time could change due to:

a. Future growth rates and plans

b. Size - the larger the size, it is possible that the fixed costs are better absorbed and hence, returns are higher

c. All the intangible forces - such as market share, market leadership, Investment into the product etc.

Thus, in the BPO industry, based on this understanding or expected business model of relationship between PE, EBIDTA and Revenue, a simpler multiple of this industry is considered based on the Revenue, which then becomes the key driver in the valuation of entities in this industry.

The objective of this case study is to bring out the relationship between various multiples and methods to highlight the theoretical basis underlying the selection of certain multiples for each industry as more appropriate for that industry.

Case Study 4: Case of an Early Stage Company investment

Let's take the example of a PE investor looking for investment in an early stage company. The PE wants to get the entire return on your investment by having ability to sell the equity in the fifth year. The quantum of investment is Rs. 250,000. The PE desires a 20% annual rate of return on its investment.

Let's say the PE finds a prospect in an early stage company which deals in computer software development services. The company has accounted sales of Rs. 150,000 and PAT of Rs. (10,000) in the current year. It is projected to report sales of Rs. 2,500,000 and PAT of Rs. 200,000.

On this basis, the valuation could be worked out as under:

- Investment of Rs. 250,000
- Desired Annual Rate of Return – 20%
- Industry P/E is, say, 10 times.
- Considering the Profits after Tax in the fifth year from now; the Enterprise Value at the end of 5th year is Rs. 2,000,000 by P/E multiple method.
- As an investor, putting Rs.250,000 at risk at a desired average annual rate of return of 20%, the investment is expected to be worth Rs. 622,080 at the end of the fifth year.

  Investment x (1 + desired rate of return) ^n = future value of investment 250000*(1.2)^5= 622080.
- Assuming there are no intervening rounds of investment and no further dilution, the Rs.250,000 has to buy (Future Value of Investment/Future value of the Company) stake in the company.

  622,080/2,000,000 = 31.1%
- If 31.1% of the company is purchased with Rs.250,000, then the complete value of the company following financing is Rs.803, 858.50.

  Investment = Percent Ownership x Company Value
- Further, it implies that the company prior to financing is worth Rs. 553,858.50.

Pre-financing Value = Company Value - Investment

Thus, this leads the PE to decide whether Rs. 553,858.50 is a reasonable valuation for the current company plus its future potential worth. Of important note are the complexities and conditions which needs to be considered, such as:

- The assumption that no other rounds of financing would be necessary to achieve the fifth year level of performance. If subsequent equity investment is obtained, however, then the stock that the first investor purchased would be diluted: the equity percentage owned in the fifth year would be less than 31.1%.
- Lack of Liquidity of investment may require separate adjustment.
- Payment of dividends or other interim compensation may also require adjustment, if contemplated
- Control concerns and Entrepreneurial incentives to enable the actual effective performance as per the projections and whether these are factored into the model and the value accretion computations for the entrepreneur driving the business as well as the PE.

Case Study 5: Approach towards Due diligence findings

Background

"AaoKhao" is a locally franchised restaurant chain with outlets in about 50 locations. It provides quick service food with a desi flavor. Of the 50 off locations Restchain Private Limited has 10 franchises. Of these 10 franchises, which are located in Mumbai region, 8 are located in Mumbai and 2 in Panvel.

The brief details of the franchised outlets are as under:

	8 outlets in Mumbai	**2 outlets in Panvel**
Annual Average revenue per outlet	36,00,000	24,00,000
Annual average profit / (loss) per outlet	3,00,000	(2,76,000)
No. of staff in employ on an average	3	3.5 (due to poor quality of staff, having to manage frequent change and consequential overlap of time between staff leaving and joining)

The franchise owner (Restchain) has been considering sale of the two units in Panvel in view 0f them making losses and that it is difficult to manage two units alone which are far away from the rest of the operations.

The initial discussions on the sale of these two units were with the employee managers of the Panvel units and they were looking at this as an opportunity to get into entrepreneurial debut for themselves.

The initial estimates on which the discussions commenced were as under:

	Mumbai		Panvel		Panvel – Project	
Revenue	3600000		2400000		80% 2880000	
Rent	900000	25%	780000	33%	780000	27%
Salaries	360000	10%	336000	14%	288000	10%
Materials	1440000	40%	1080000	45%	1008000	35%
Utilities	240000	7%	180000	8%	180000	6%
Overheads	360000	10%	300000	13%	255000	9%
Total Costs	3300000	92%	2676000	112%	2511000	87%
Profit / Loss	300000	8%	276000	-12%	369000	13%
Investment	1500000				1500000	
ROI	20%				25%	

However, when the employee managers decided to look into the facts more carefully and do their own diligence checks, the following facts emerged:

- The revenue growth assumption is that Panvel outlets could do 80% of the Mumbai outlets. However, restaurant revenue in malls is largely dependent on footfalls and the footfalls in Panvel are 30% below that of Mumbai.
- This would also only require minimal marketing efforts and instead of Rs. 75,000 marketing costs planned, could be managed within Rs. 25,000.
- Employee efficiencies and overhead savings could be achieved, provided there is focus and attention to detail.

Based on this, if the projections are revised on a practical basis, then what follows is:

	Panvel outlets – what's practical	
Revenue	2520000	70%
Rent	780000	31%
Salaries	288000	11%
Materials	1008000	40%

Utilities	180000	7%
Overheads	205000	8%
Total Costs	2461000	98%
Profit / Loss	59000	2%
Investment	295000	
ROI	20%	

In this practical plan, Revenue was considered at 70% of the Mumbai outlets as the best possible considering the footfall in these malls. Material cost considered at 40% as that's the best achievable (as in Mumbai). Marketing costs considered at the lower estimate from the original estimates. All this ultimately means a much reduced profitability, which at a 20% ROI, leads to a valuation of around 3 lacs.

This when looked at from the perspective of Restchain, if it chose to disband the outlet and realize by liquidation, it may realize only about Rs. 2,00,000 whereas, even as per the adjusted workings, the buyers could offer about Rs. 3 lakhs for the business. Thus, for the company, it may be more sensible to sell the units, assuming all other factors are not critical.

Chapter 6

Detailed Case Study for identifying Comparable companies and to conclude Valuation

This Case Study elaborates in detail the process of identifying comparable companies and then subsequently filter few outliers to narrow down the sample to finally conclude valuation with reference to revenue multiple and EBITDA multiple.

Introduction

You are a Manager in M/s. Valuer Associates and your partner has designated you to perform a valuation of a Peace Auto Ltd. (Hence forth to be called as Peace), leading Indian automobile manufacturer for potential strategic Investor – Bull Investor Ltd. Due diligence -of the Peace is carried by L.A.W. Lawyers & Associates and have identified no material misstatements which are significant for considerations under Equity Valuation Exercise.

The company is listed on a national stock exchange. Your signing partner believes that, listed price may not reflect the fair value because shares may be less frequently traded. He has specifically asked you to analyse the volume of share trading and include in your assessment a conclusion about infrequent trade.

Your manager has requested you to perform valuation by using Comparable Company's Method under Market Multiple Approach. You need to ensure the comparability and market participant specific assumption while you complete the valuation exercise.

You should ignore any synergy/ acquisition benefits. You have also been asked not to apply discount for lack of marketability as few more strategic buyers are bidding for the complete acquisition and hence investor -Bull Investor Ltd. - believes that the active market for such purchase is available. As the existing investor of Peace Ltd. is looking for exit for personal reason, Bull Investor Ltd. believes that it may not be required to pay controlling

premium and hence, for a limited purpose assessment, has requested you to ignore both Controlling Premium and Discount for Lack of Marketability.

Kindly assume the Date of Valuation as 31st December 2020.

About the Investee Company

Brief Profile of the Company

1. The brief incorporation history of the Company is as follows:

    a. Peace Auto Pvt. Ltd. was incorporated on February 22, 2007 as a private limited company. It was set up as a joint venture between Indian Industries Ltd. and Foreign Manufacturing Inc.

    b. In the year 2011, the Company formed a joint venture with German Auto Innovation Group.

    c. The Company was converted into a public limited company on November 2, 2017 after which the name of the Company was changed to Peace Auto Ltd.

    d. In the year 2018, the Company was listed on Emerge platform of the National Stock Exchange.

Business activities of the Company

2. The Company is engaged in the business of manufacturing medium to high density sintered components for automotive engines, powertrain and exhaust applications. As explained to me this is a niche-business segment in sintering products industry and the Company does not compete in low density sintering products where entities like ABC Metals Pvt. Ltd. and XYZ Fasteners Ltd. have the maximum market share.

3. The Company caters to OEM customers in automotive segment and is also in the process of diversifying its business to cater to the customers from non-automotive such as off-road equipment and oil & gas.

4. The Company has entered into Joint Venture agreement with German Auto Innovation Group under which it has received technology for development of high strength sinter hardened Synchro hub, Cam to Cam gears and Cam to Cam Backlash Gears. The German Group was founded in 1920 and has annual revenues of about EUR 1000 Million.

Nearly 54% of its revenues are from customers in Europe, 26% from customers in Americas and 20% from customers in Asia. It has 35 production sites globally and employees more than eight thousand employees. The core areas of German Group include sintered components, engine and industrial bearings, friction materials, coatings, power electronics components and special machinery which, thus, include a wide variety of applications.

5. The manufacturing facility of the Company represents sintering capacity of the Company is 4,000 ton per annum.

About sintering technology in brief

6. Sintering is the process of compacting and forming a solid mass of material by heat or pressure without melting it to the point of liquefaction. Sintering happens naturally in mineral deposits or as a manufacturing process used with metals, ceramics, plastics, and other materials.

7. Advantages of sintering process are as under:

   a. It is capable of producing nearly net-shaped objects applying fewer processes.

   b. Parts can be made from a great variety of compositions. It is therefore much easy to have parts of desired mechanical and physical properties like density, hardness toughness, stiffness, damping, and specific electrical or magnetic properties.

   c. Reduces wastage of material significantly.

   d. Reduces the number of machining operations, therefore reducing wastages of raw materials, power consumption and, therefore, manufacturing costs.

8. Disadvantages of sintering process are as under:

   a. It cannot be used in producing components like gears where requirement of torque is higher (for ex., first gear in a vehicle).

   b. It may be difficult to produce large size parts.

   c. Tooling is typically costlier, especially where production volumes are lower and may have lesser useful life.

9. Applications of sintering technology are widespread and include:

Powder-technological production of structural steel parts	Oxide-dispersion strengthened superalloys for high temperature motors
Self-lubricating bearings,	Amalgams for dental applications
Porous metals for filtering	Cemented carbides for cutting tools
Tungsten wires for lamp filaments	Soft and hard magnetic materials
Electrical contacts	Ceramic components
Composite packages for highly integrated electronic devices	Metallic and ceramic materials for medical applications

Product profile

10. The products offered by the Company to its customers are briefly summarized below:

Vehicle	**Component supplied by the Company**
Maruti Suzuki India Ltd.	
Eeco	Engine – pulleys
Alto, Celerio and Wagon-R	Transmissions – Synchro hubs
Swift, Dzire, Ertiga, Baleno, VitaraBreazza, Ignis, Ciza and S-Cross	Engine – gears & sensor system Transmissions – Synchro hubs
Mahindra &Mahindra Ltd.	
Bolero, Scorpio, Xylo and Maxx	Engine – sprockets & sensor system Transmission – Synchro hubs & shift system
Thar	Transmission – Synchro hubs & synchro rings
XUV 500, Jeeto, Maxximo and Supro	Engine – sensor system Transmissions – Synchro hubs

Vehicle	Component supplied by the Company
TUV 300, Quanto and Nuvosport	Engine – sprockets & sensor system Transmission – Synchro hubs & shift system
KUV 100	Engine – sprockets & sensor system Transmission – Synchro hubs
Fiat India Pvt. Ltd.	
Punto, Linea and Avventura	Engine – gears
Bajaj Auto Ltd.	
Pulsar and Avenger	Engine – gears

- The Company has recently added customers like Dana for supplying components to off-road equipment and Gilbraco in oil & gas industry so as to diversify the product offerings.

11. The break-up of historical customer-wise revenues of the Company is as under:

Customer	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21 (6 months)
Maruti Suzuki	37%	44%	48%	47%	40%	28%
Mahindra &Mahindra	27%	28%	32%	34%	41%	43%
Bajaj Auto	13%	14%	11%	11%	14%	21%
Total	**77%**	**86%**	**91%**	**92%**	**95%**	**92%**
Other customers	23%	14%	9%	8%	5%	8%

- The other customers of the Company include Fiat India Pvt. Ltd. and customers from non-automotive segment.
- The Company targets that by FY 25-26, the proportion of revenue from top 3 customers will reduce to about 60% and the share of

new customers such as PSA, INA-Schaeffler, Dana Graziana (Off-road equipment), Gilbraco (oil & gas industry) will increase to 32% of total revenues.

Application of the Market Approach

12. This approach is based on the assumption that the value of an asset must be equal to the value of a substitute asset with the same characteristics. Therefore, the value of an asset can be inferred by finding similar assets that have been sold in recent transactions. The market approach includes (a) the Recent Securities Transaction Approach, (b) the Guideline Public Company Method and (c) the Guideline Company Transaction Method.

13. This approach may also include use of industry specific multiples. The companies in certain industries are often valued in terms of customers, users, recurring monthly revenue and a number of other attributes. Where reliable data is available, it may be appropriate to conduct a valuation by applying these industry specific multiples to the appropriate attributes of the subject company.

14. As per paragraph no. 6.23 of ICAI Valuation Standard 101 and paragraph 14 of ICAI Valuation Standard 301, market approach is a valuation approach that uses prices and other relevant information generated by market transactions involving identical or comparable (i.e., similar) assets, liabilities or a group of assets and liabilities, such as a business.

15. You have considered the following methods of valuation in the present valuation exercise.

Market price method:

(i) As per paragraph 18 of ICAI Valuation Standard 103 – Valuation Approaches and Methods, in this method of valuation, a valuer is required to consider the traded price observed over a reasonable period while valuing assets which are traded in the active market.

(ii) You have obtained the details of quantity traded of the shares of the Company from the website of National Stock Exchange to assess if they are frequently traded or otherwise. As per Section 2 (j) of the SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 2011, the traded number of shares should be at least ten percent of total

number of shares of the Company so as to be considered as frequently trade shares. Your observations in this regard are as under:

Particulars	01-Oct-18 to 30-Sep-19	01-Oct-19 to 30-Sep-20	01-Jan-20 to 31-Dec-20
Total no. of issued equity shares	2,42,02,822	2,42,02,822	2,42,02,822
Total quantity traded	55,22,000	29,76,000	22,76,296
% of quantity traded	22.82%	12.30%	9.41%
Minimum average price	50.64	35.55	35.55
Maximum average price	77.82	80.82	83.43
% shareholding of promoters	65.5%	65.6%	65.6%
% shareholding of public	34.4%	34.4%	34.4%

(iii) It is observed that over a period of time, the quantum of trade in the Company's equity shares reduced significantly. As on the date of valuation, the stock could be considered as 'infrequently traded' as the Company's stock has breached the threshold of 10% of total issued shares and is a 'not frequently traded' stock (Check period from 1st Jan 2020 to 31st December 2020).

(iv) It is also observed that the number of equity shares available for trading has not changed as the promoters / promoter group entities have not diluted their stake. It is also observed that although trading in the Company's shares has reduced significantly, the stock price has increased.

(v) Therefore, it is your considered view that the quoted share price of the Company cannot be considered as a fair value as defined in the ICAI Valuation Standards and generally accepted valuation principles.

Hence, you have not adopted this method of valuation in the present valuation exercise.

Comparable Companies Multiple (CCM) Method:

(i) This method, also known as 'Guideline Public Company Method', involves valuing an asset based on market multiples derived from prices of market comparables traded on active market.

(ii) This method of valuation involves identifying the market comparables, selection & calculation of market multiples therefrom, making adjustments required to the multiples derived and calculate value of the asset on appropriate metrices or parameters considering the reasonableness of the range of values.

(iii) The valuer may also make adjustments to the transaction multiple based on factors such as industry to which the asset belongs, geographic area of operations, similarity with the line of business or economic forces affecting the asset being valued, profitability, stage of life-cycle of the asset, and diversification etc.

(iv) The market multiples are computed based on various inputs such as trading prices of market comparables in active market, EBIDTA, EBIT, Profit After Tax, revenue, book value of assets etc.

(v) In the present case, you have identified 12 peer group companies based on the analysis of their general business profile and discussions with the Management. It has been observed that in the recent past, share prices of most of the peer group companies have fluctuated a lot due to challenging business environment since FY 19-20 coupled with adverse impact of Covid-19 pandemic. Therefore, you have not used trading prices (i.e., quoted prices of equity shares) of comparable companies as a direct comparable reference in this valuation.

(vi) You have adopted revenues of the peer group companies as a basis for calculation of market multiples as it is a primary indicator of the success of any business and one of the important constituents actively tracked by the stock markets in determining stock prices.

(vii) You have also considered EBIDTA margin as a basis for calculation of market multiples as it is a measure of efficiency in deploying operating assets of an entity. It disregards the impact on profitability on account of different capital structure, asset base and varying tax regimes etc.

The EBIDTA based multiple places the peer group on a common platform and is widely adopted in determining stock prices. Hence, it is usually preferred over revenue based multiple.

(viii) It may also be noted that quoted prices of companies listed on stock exchanges do not always reflect their fair values. In addition to the company's performance, stock prices are also influenced by the sentiments and perceptions of the stock market participants about overall performance of the global economies, political stability, Government policies and incentives etc. In the given case, the Company's equity shares are observed to be infrequently traded. Therefore, in your view, Comparable Companies Multiples Method alone should not be adopted as a sole indicator of the fair value of the Company.

(ix) The importance of the ability of an entity to generate future free cash flows cannot be undermined. Hence, you have suggested further analysis under Income Approach in arriving at fair value of the Company with reference to the entity specific cash flows. *(this analysis is not a part of this case study.)*

Identification of Market Comparables

16. The paragraph no. 23 of the ICAI Valuation Standard 103 – Valuation Approaches & Methods states that while identifying and selecting the market comparables, a valuer shall consider the factors such as-

    a. industry to which the asset belongs;

    b. geographic area of operations;

    c. similar line of business, or similar economic forces that affect the asset being valued; or

    d. other parameters such as size (for example - revenue, assets, etc.), stage of life-cycle of the asset, profitability, diversification, etc.

Collection of Market Comparables

17. After screening auto-ancillary companies at Capital IQ database and www.moneycontrol.com, you have created a sample of 12 (twelve) companies as below for further comparability testing in accordance with paragraph no. 23 of the ICAI Valuation Standard 103. The further details including business profile are given in the annexures enclosed to this report.

Sr. No.	Particulars	No. of years in business	Revenue in FY 18-19 (Rs. Million)	Average revenue growth rate (FY 13-14 to FY 18-19)	EBIDTA range (FY 13-14 to FY 18-19)	EV / Revenue multiple as on 30-Sep-20	EV / EBIDTA multiple as on 30-Sep-20
1	Peace Auto Ltd.	13 years	827.37	16.34%	17.7% to 23.0%	3.75	27.95
2	Endurance Technologies Ltd.	35 years	75,104.99	15.66%	12.1% to 15.0%	2.26	14.49
3	Wabco India Ltd. (acquired by ZF in May'2020)	Not available on the website	28,541.36	31.11%	14.3% to 15.9%	7.17	63.21
4	Suprajit Engineering Ltd.	35 years	15,899.00	38.32%	15.0% to 17.4%	1.63	12.59
5	Minda Corporation Ltd.	60+ years	30,920.00	19.08%	9.2% to 10.5%	0.72	8.86
6	ZF Steering Gear (India) Ltd.	39 years	4,394.24	10.19%	11.8% to 20.5%	0.87	6.65
7	RACL Geartech Ltd.	31 years	1,899.51	16.45%	12.9% to 16.2%	0.88	4.39
8	The Hi-Tech Gears Ltd.	16 years	9,137.22	30.62%	12.3% to 13.7%	0.71	6.61
9	SAR Auto Products Limited	20+ years	98.31	74.82%	-122.9% to 23.8%	23.04	151.04

Sr. No.	Particulars	No. of years in business	Revenue in FY 18-19 (Rs. Million)	Average revenue growth rate (FY 13-14 to FY 18-19)	EBIDTA range (FY 13-14 to FY 18-19)	EV / Revenue multiple as on 30-Sep-20	EV / EBIDTA multiple as on 30-Sep-20
10	JTEKT India Ltd.	14 years	17,539.66	5.17%	11.7% to 13.1%	1.39	19.54
11	ShivamAutotech Ltd.	16 years	6,365.56	11.94%	10.3% to 20.1%	0.99	13.74
12	Motherson Sumi Systems Ltd.	34 years	6,32,932.00	21.60%	7.7% to 10.0%	0.78	11.39
13	Shanthi Gears Ltd.	51 years	2,416.80	11.89%	11.6% to 27.6%	3.25	36.97

The industry to which the asset belongs:

18. In the present case, the Company's revenues are primarily dependent upon auto-OEMs or their Tier-1 suppliers. Therefore, the peer group companies considered to include those companies which are primarily engaged in manufacturing automotive components. The detailed profile of the peer group companies is given in **Annexure** enclosed to this commentary.

Scale of operations and similarity of business:

19. As per the research carried out by, you have not come across any companies listed on the stock exchanges that are engaged in manufacturing of sintered metal products only. As explained to you by the management, some of the listed companies may have a business line dedicated to sintered products. Also, some of the sample peer group companies identified by you are diversified as compared to the Company and operate at a much larger scale than the Company. Some of the entities may have presence in multiple continents. However, these companies have at least one line of business which is identical to that of the Company even if technology deployed to manufactured similar line of product may vary. Also, taking into account the fact that the Company has a technology tie-up with German Group, it can be considered to be comparable with peer group companies.

20. The scale of operations of the Company is smaller than peer group companies. However, you have not come across any entity engaged in automotive components business having scale of operations exactly similar to that of the Company.

21. While identifying the peer group companies from the selected sample, you have given due importance to the number of years for which these entities are engaged in their respective businesses.

Exclusion of Non-comparables

22. You have evaluated the comparability factor primarily based on the comparison of trends in historical EBIDTA margins of the peer group companies with that of the Company. Based on this comparison, it is appropriate to exclude the companies having historical EBIDTA margins lower than 12.0% and higher than 25.0% of revenues. Further, you have also considered the diversity in the lines of businesses of the

companies included in the sample and their respective age profile. You have not included the following companies in the peer group used in this valuation exercise:

Name of the company	Reasons for exclusion
Minda Corporation Ltd.	• Much more diversified entity and some of the business lines are completely unrelated to the Company. • The historical trend in the EBIDTA margins is significantly lower than that of the Company. • The Company is in existence for over 60 years and can be considered as a mature company in comparison with Peace Auto Ltd.
Motherson Sumi Systems Ltd.	• Much more diversified entity and some of the business lines are completely unrelated to the Company. • The historical trend in the EBIDTA margins is significantly lower than that of the Company. • The Company is in existence for over 34 years and can be considered as a mature company in comparison with Peace Auto Ltd.
Shanthi Gears Ltd.	• The historical EBIDTA margins could be considered as comparable to that of the Company. • The Company is in existence for over 34 years and can be considered as a mature company in comparison with Peace Auto Ltd. • This entity also operates a foundry for ferrous and non-ferrous castings which is quite different as compared to the Company's business.

Evaluation of appropriateness of market multiples

23. The paragraph no. 24 of the ICAI Valuation Standard 103 states that the market multiples are generally computed on the basis of following inputs:

a. trading prices of market comparables in an active market; and

b. financial metrics such as Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA), Profit After Tax (PAT), Sales, Book Value of assets, etc.

24. On account of the reasons mentioned in the paragraphs discussing appropriateness of the Comparable Companies' Multiples Method, you have obtained Enterprise Value / Revenue multiples and Enterprise Value / EBIDTA multiples of the peer group companies from the S&P Capital IQ & Bloomberg Terminal database. These multiples are based on data of last twelve months (LTM).

25. A summary of the above-mentioned multiples is as under:

Name of the company	EV / Revenue Multiple (TEV / LTM Total Revenue)	EV / EBIDTA Multiple (TEV / LTM EBITDA)
Endurance Technologies Ltd.	2.26	14.49
Wabco India Ltd.	7.17	63.21
Suprajit Engineering Ltd.	1.63	12.59
ZF Steering Gear (India) Ltd.	0.87	6.65
RACL Geartech Ltd.	0.88	4.39
The Hi-Tech Gears Ltd.	0.71	6.61
SAR Auto Products Ltd.	23.04	151.04
JTEKT India Ltd.	1.39	19.54
Shivam Autotech Ltd.	0.99	13.74

26. It is observed from the above data that the revenue and EBIDTA multiple values cannot be considered to be falling within any particular range. Therefore, it is important to exclude 'outliers' so as to avoid arriving at illogical value conclusion. For the purpose of this assessment, you have analyzed the revenue and EBIDTA multiples of

Peace Auto Ltd. as on the valuation date and also as on the date of closure of last audited financial statements. The result is as under:

Peace Auto Ltd.	EV / Revenue Multiple	EV / EBIDTA Multiple
	(TEV / LTM Total Revenue)	(TEV / LTM EBITDA)
31-Mar-20	2.83	13.04
30-Sep-20	3.75	27.95

27. It is observed from the above data that during six months after the end of the last financial year (i.e., FY 2019-20), the EBIDTA multiple has more than doubled. The volatility in listed price may be on account of nosedive in stock market due to Covid-19 around March 2020 and subsequent recovery factoring market optimism due to lifting of lockdown restrictions across the country. Hence, the range of multiples reported as of March 31, 2020 and September 30, 2020 can be considered to be acceptable range to identify comparable companies. Therefore, you have decided to exclude the peer group companies having EBIDTA multiple lower than 12.0 and higher than 30.0 to arrive at the multiple for the valuation of the Company.

Exclusion of Outliers

28. As a result, the multiples of the following companies have been considered as outliers and these have been excluded in this valuation exercise.

Name of the company	EV / Revenue Multiple	EV / EBIDTA Multiple
	(TEV / LTM Total Revenue)	(TEV / LTM EBITDA)
Wabco India Ltd.	7.17	63.21
ZF Steering Gear (India) Ltd.	0.87	6.65
RACL Geartech Ltd.	0.88	4.39
The Hi-Tech Gears Ltd.	0.71	6.61
SAR Auto Products Limited	23.04	151.04

Set of Comparable Companies

29. Consequently, the comparable companies out of the sample of twelve companies is as follows:

Name of the company	EV / Revenue Multiple (TEV / LTM Total Revenue)	EV / EBIDTA Multiple (TEV / LTM EBITDA)
Endurance Technologies Ltd.	2.26	14.49
Suprajit Engineering Ltd.	1.63	12.59
JTEKT India Ltd.	1.39	19.54
ShivamAutotech Ltd.	0.99	13.74

Acceptable Comparable Company Multiples

30. Excluding the multiples of outlier peer group companies, the relevant statistical data of multiples is analyzed below:

	EV / Revenue Multiple (TEV / LTM Total Revenue)	EV / EBIDTA Multiple (TEV / LTM EBITDA)
Minimum multiple	0.99	12.59
Maximum multiple	2.26	19.54
Average (mean) multiple	1.57	15.09
Median multiple	**1.51**	**14.11**

We can observe that average and median multiples from the comparable 4 (Four) companies are similar and hence, you conclude that the sample of 4 comparable companies is a good sample without large dispersion from the mean / significant standard deviation. Hence, the median multiples can be used in a Comparable Company Market Multiple.

Valuation

31. A median based multiple is a better indicator of central tendency than mean. Therefore, you have used median EV / Revenue multiple and median EV / EBIDTA multiple for arriving at the valuation of business of the Company. You have used the prospective revenue and prospective EBIDTA of the Company for FY 21-22 as FY 20-21 is an exceptional year in which nearly two months of business operations were lost due to lockdown imposed by the Government and it has been represented to you by the Management that the prospective financial information for FY 21-22 has been prepared based on the confirmed orders received from the customers, and hence, more realistic. The calculation of the enterprise value is as under.

		EV / Revenue Multiple	**EV / EBIDTA Multiple**
		(TEV / LTM Total Revenue)	**(TEV / LTM EBITDA)**
Peace - revenue for FY 21-22	Rs. Million	968.07	-
Peace - EBIDTA for FY 21-22	Rs. Million	-	158.05
Applied multiple (median of comparable company multiples)		1.51	14.11
Enterprise value	Rs. Million	1,460.84	2,230.61
Book value of debt (considered as equal to market value)	Rs. Million	353.94	353.94
Fair value of equity	Rs. Million	1,106.90	1,876.67
No. of equity shares	Number	2,42,02,822	2,42,02,822
Fair value per equity share	**Rs.**	**45.73**	**77.54**

You have decided to ignore revenue based multiple as it does not reflect the efficient use of the capital that usually gets reflected in EBITDA margin. Hence, you have concluded the fair value of equity share of the company at Rs.77.54. However, you also believe that comparable company method shall be used primary as a sanity check and not as a key method of valuation. You have proposed further assessment under Income Approach (which will reflect inherent strength of the fair value through entity specific cash flows).

Annexure 1

Comparison of Peace Auto Ltd. with Peer Group Companies - Financials

Particulars	Peace Auto Ltd.	Endurance Tech-nologies Ltd.	Wabco India Ltd. (acquired by ZF in May' 2020)	Suprajit Engineering Ltd.	Minda Corporation Ltd.	ZF Steering Gear (India) Ltd.	RACL Geartech Ltd.	The Hi-Tech Gears Ltd.	SAR Auto Products Limited	JTEKT India Ltd.	Shivam Autotech Ltd.	MothersonSumi Systems Ltd.	Shanthi Gears Ltd.
No. of years in business	13 years	35 years	Not available on the website	35 years	60+ years	39 years	31 years	16 years	20+ years	14 years	16 years	34 years	51 years
Revenue in FY 18-19 (Rs. Million)	827.37	75,104.99	28,541.36	15,899.00	30,920.00	4,394.24	1,899.51	9,137.22	98.31	17,539.66	6,365.56	6,32,932.00	2,416.80
Average revenue growth rate (FY 13-14 to FY 18-19)	16.34%	15.66%	31.11%	38.32%	19.08%	10.19%	16.45%	30.62%	74.82%	5.17%	11.94%	21.60%	11.89%
EBIDTA range (FY 13-14 to FY 18-19)	17.7% to 23.0%	12.1% to 15.0%	14.3% to 15.9%	15.0% to 17.4%	9.2% to 10.5%	11.8% to 20.5%	12.9% to 16.2%	12.3% to 13.7%	-122.9% to 23.8%	11.7% to 13.1%	10.3% to 20.1%	7.7% to 10.0%	11.6% to 27.6%
EV / Revenue multiple as on 30-Sep-20	3.75	2.26	7.17	1.63	0.72	0.87	0.88	0.71	23.04	1.39	0.99	0.78	3.25
EV / EBIDTA multiple as on 30-Sep-20	27.95	14.49	63.21	12.59	8.86	6.65	4.39	6.61	151.04	19.54	13.74	11.39	36.97

Annexure 2

Comparison of Peace Auto Ltd. with Peer Group Companies - Nature of products

Peace Auto Ltd.	Endurance Technologies Ltd.	Wabco India Ltd. (acquired by ZF in May'2020)	Suprajit Engineering Ltd.	Minda Corporation Ltd.	ZF Steering Gear (India) Ltd.	RACL Geartech Ltd.	The Hi-Tech Gears Ltd.	SAR Auto Products Limited	JTEKT India Ltd.	Shivam Autotech Ltd.	Motherson Sumi Systems Ltd.	Shanthi Gears Ltd.
Drive-train gears	Transmission - CVT	-	-	-	-	Transmission gears & shafts	Transmission & engine components	Transmission Spline Shaft	-	Transmission gears & shafts	-	-
Synchroniser hubs & dog rings	Transmission - Clutch Assemblies	-	-	-	-	-	-	Couplings and Power Takeoff Clutches which are used for Transmission	-	-	Clutches for car AC compressors	-
Engine drive gears	-	-	-	-	-	-	-	Engine and Differential gear boxes	-	-	-	Helical gear boxes
-	-	-	-	-	Bevel gear boxes	-	-	-	-	-	-	Bevel helical gear boxes
-	-	-	-	-	-	-	-	-	-	-	-	Worm gearboxes
-	-	-	-	-	-	-	-	-	-	-	-	Extruder

												gearboxes
-	-	-	-	-	-	-	-	-	-	-	-	Cooling tower gearboxes
-	-	-	-	-	-	-	-	-	-	-	-	Custom built gears & pinions
-	-	-	-	-	-	-	-	-	-	-	-	Geared motors
Electric vehicle components (helical pulleys for EPS components, components for actuators)	-	-	-	Electric vehicle components	-	-	-	-	-	EPS components	-	-
The Company has acquired one customer in Off Highway Equipment sector in	-	Off-high way equipment safety & efficiency solutions	-	-	-	-	-	-	-	-	Cutting and gear cutting tools, cabins for off-highway vehicles, HVAC systems, shock absorbers,	-

Dec'2020											metal components and assemblies	
-	-	-	-	-	-	-	-	-	-	-	Coating services for a variety of industries	-
-	-	-	-	Starter motor	-	-	-	-	-	Starter motor components	-	-
-	-	-	-	Alternator	-	-	-	-	-	Alternator components	-	-
-	-	-	-	-	-	-	-	-	-	Precision engineering components	-	-
-	-	-	-	-	-	-	-	-	Machine tools	-	-	-
-	-	-	-	-	-	-	-	-	Steering components	-	-	-
Engine shaft bearing caps	-	-	-	-	-	-	-	-	Bearings	-	-	-

-	-	-	-	-	-	-	-	Synchronizer Rings	-	-	-	-
Chain sprockets	-	-	-	-	-	Sprockets & ratchets and synchronizing cones & rings	-	Cones & Hubs (Spur, Helical, Straight Bevel, Sprockets)	-	-	-	-
-	-	-	-	-	-	-	Driveline components	-	-	-	-	-
-	-	-	-	-	-	-	Engineering design services	-	-	-	-	-
-	-	-	-	-	-	Reduction gear trains & CVT gear boxes	-	-	-	-	-	-
-	-	-	-	-	-	Engine timing gears	-	-	-	-	-	-
-	-	-	-	-	-	Sub-assemblies	-	-	-	-	-	-
-	-	-	-	-	-	Precision machined parts	-	-	-	-	-	-
-	-	-	-	-	-	Industrial gears	-	-	-	-	-	-

-	-	-	-	-	Power steering for HCV, LCV & MUV and passenger cars	-	-	-	-	-	-	-
Belt pulleys	-	-	-	-	Vane pumps & pump pulleys	-	-	-	-	-	-	-
-	-	-	-	-	Steering & Pump mounting Brackets	-	-	-	-	-	-	-
-	-	-	-	-	Steering columns, intermediate shafts	-	-	-	-	-	-	-
-	-	-	-	-	Universal joints	-	-	-	-	-	-	-
-	-	-	-	Locksets, door handles, latches	-	-	-	-	-	-	-	-
-	Aluminum die casting	-	-	Die casting parts	-	-	-	-	-	-	-	Foundry for ferrous and non-ferrous castings

-	-	-	-	Instrument cluster & sensors	-	-	-	-	-	-	-	-
-	-	-	-	Wiring harness & components	-	-	-	-	-	-	Wiring harness	-
-	-	-	-	Interior plastics	-	-	-	-	-	-	-	-
-	-	-	-	Telematics, ITS & IOT	-	-	-	-	-	-	-	-
ABS rings & sensor bosses	Braking system (ABS, CBS, Tandem Master Cylinders, Hydraulic Drum Brakes)	Air disc brakes, brake actuation, brake control solutions	Control cables, brake cable & lever systems	-	-	-	-	-	-	-	-	-
-	-	-	Push-pull assemblies	-	-	-	-	-	-	-	-	-
-	-	-	Rotary push-pull lever control systems	-	-	-	-	-	-	-	-	-
-	-	-	Gear shifter	-	-	-	-	-	-	-	-	-

			mechanism & cable									
-	-	-	Joysticks & remote valve control systems	-	-	-	-	-	-	-	-	-
-	-	-	Vehicle lamps (halogen & auxiliary)	-	-	-	-	-	-	-	-	-
-	-	-	Clusters & speedometers	-	-	-	-	-	-	-	-	-
-	-	Vehicle electronic systems	-	-	-	-	-	-	-	-	-	-
-	-	Solutions to reduce vehicle weight, improve fuel efficiency & fuel recovery and reduce emissions	-	-	-	-	-	-	-	-	-	-
-	Suspensio	-	-	-	-	-	-	-	-	-	-	-

	n (front forks & shock absorbers)											
-	-	-	-	-	-	-	-	-	-	-	Interior & exterior mirrors, camera-based vision systems	-
-	-	-	-	-	-	-	-	-	-	-	Mould design, tooling and elastomer processing.	-
-	-	-	-	-	-	-	-	-	-	-	Sheet metal parts	-
Exhaust systems	-	-	-	-	-	-	-	-	-	-	-	-

Appendix "A"

Concept Paper on all about Fair Value

1. Introduction

Financial reporting in India has undergone a significant transformation owing to the adoption of Indian Accounting Standards (Ind AS) and fair value is the guiding principle in financial reporting across the globe. The Institute of Chartered Accountants of India (ICAI) converged accounting standards with IFRSs and accordingly, the financial statements beginning from the accounting year 2016-17 started disclosing financial figures based on fair value measurement. Fair value is a common basis of value associated with financial reporting valuations and is utilised throughout the Indian Accounting Standards.

It is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the valuation date.

In the year 2018, ICAI has also issued ICAI Valuation Standards, 2018 and the Standards have been formulated to meet the requirement of giving guidance/ valuation to determine the "Fair Value" as per Ind AS 113 as notified by the Ministry of Corporate Affairs.

The increasing importance placed by international accounting authorities on Fair Value (FV) reinforces the need for the consistent use of valuation practices worldwide. Fair value accounting can make entities' businesses appear more volatile than they actually are. Fair value accounting is argued to facilitate investors' risk assessment through transparent reporting of underlying business. However, measurement issues and misunderstanding of fair value information may lead to excess stock price volatility.

The Revised Model Business Corporation Act (RMBCA) of United States defines fair value as:

"The value of the shares immediately before the effectuation of the corporate action to which the dissenter objects, excluding any appreciation or depreciation in anticipation of the corporate action unless exclusion would be inequitable."

Fair Value is the standard of value currently used in at least two legal contexts. The first use of Fair Value is that it is the standard of value used in financial statement accounting for publicly traded companies.

2. Fair Value and Ind AS

With the introduction and the subsequent adoption of Ind AS by many Indian companies, the emphasis on valuation has increased.

The basis of value is closely related to the purpose of a given valuation exercise and can often vary. Selecting an appropriate basis of value is critical. For example, Fair Value is generally used for financial reporting purposes while Fair Market Value is used for tax reporting purposes. Other standards of value include investment value, liquidation value etc. Investment value reflects the value to a specific buyer/seller while liquidation value reflects the possible price of a business or an asset when operations are being discontinued or the assets/liabilities are being sold piece meal.

3. Definition of Fair Value as per Ind AS- 113

Typically, Fair Value is a commonly utilized basis of value. Ind AS 113 – Fair Value Measurement defines Fair Value as:

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

4. Key aspects of Fair Value as per Ind AS 113

Key aspects of Fair Value as per Ind AS 113 include:

- Fair Value is based on the exit price i.e., the price that would be received to sell an asset or paid to transfer a liability, not the transaction price or entry price or the price that was actually paid for the asset or that was received to assume the liability. Generally, entry and exit prices are different. The idea of exit price is based on expectations about the sale or transfer price from the perspective of market participants as of the valuation date.
- Fair Value emphasizes the concepts of a “principal market” and the “most advantageous market” with respect to the business/asset being valued. The principal market is defined as the market with the greatest volume and level of activity for the subject asset or liability. Ind AS 113,

specifies that in the absence of a principal market, the most advantageous market should be considered. The most advantageous market is the market that maximizes the amount that would be received to sell a given asset or minimizes the amount that would be paid to transfer the liability, after taking into account transaction costs and transportation costs.

- Fair Value measurements should reflect market participant assumptions in pricing an asset or liability. Market participants are assumed to be buyers and sellers in the principal (or most advantageous) market that are knowledgeable independent, unrelated parties willing and able to transact for the asset or liability being Fair Valued without compulsion.
- The highest and best use ("HABU") of a nonfinancial asset or group of nonfinancial assets and nonfinancial liabilities is the use by market participants that maximises the value of the nonfinancial assets/liabilities. This Fair Value concept considers (i) the different ways of utilizing the individual asset/liability, i.e., the highest and best use, and (ii) the valuation premise, whether the maximum value is on a standalone basis or in combination with other assets.
- Fair Value measurements should consider characteristics of the assets/liabilities being valued such as the condition, location, restrictions associated with the sale or use of an asset as applicable. Liability fair valuations should reflect non-performance risk.

5. Fair Value may not be equal to Transaction Price

- When transaction is between related parties
- Where transaction occurs under duress or force
- Unit of account represented by the transaction is different from that of the asset or liability
- Market in which the transaction occurs is different from the principal or most advantageous market

6. Fair value for Financial Reporting vs. Fair Market Value (FMV)

- Fair value has a hierarchy of inputs for Valuation but FMV does not have it

- Fair Value uses HABU for non – financial assets Valuation resulting in maximising value against consensus value under FMV
- DLOM adjustments may be required in certain cases under Fair Value but DLOC is doubtful
- Fair value disregards blockage discount (decline in value due to size)

Fair value is usually synonymous to fair market value except in certain circumstances where characteristics of an asset translate into a special asset value for the party(ies) involved.

A comparison of some of the differences between the Fair Market Value standard and concept of Fair Value is outlined below:

(a) Awareness of Facts

While the *fair market value* standard requires both the buyer and seller to be aware of **all** facts and circumstances that are relevant to the valuation, the fair value standard does not require any such knowledge, nor is the knowledge required of both parties. The concept of Fair value anticipates that the willing buyer and willing seller will be "*well informed*", while standard of Fair market value requires that the willing buyer and seller should be *reasonably aware of all relevant facts and circumstances.* While the two terms appear to be similar, they are not. A well informed party may still be unaware of all the facts and circumstances relevant to the valuation.

(b) Compulsion to buy or sell

Fair market value standard requires that neither the willing buyer nor the willing seller is under any compulsion to buy or sell the property that is the subject of the valuation. Fair value standard states that the property should not be the subject of a forced sale or liquidation. There is a difference between the two terms. A party may wish to liquidate voluntarily without being under some internal compulsion. Also, it is possible that one of the parties is being forced into the transaction while the other party is at free will. Fair market value standard strictly requires that neither party be under any compulsion.

(c) Fair value uses the highest and best use of an asset from the perspective of market participants. This may result in maximizing the value as against consensus value under FMV

(d) DLOM adjustments may require in certain cases under fair value but adjustment for DLOC is doubtful.

(e) Fair value disregard blockage discount (a decline in the value resulting from the size of position). The opinion of FASB is clear that when a quoted price is available in the active market it should not be further reduced for blockage discount. Because the quoted price is without any regard to the intent of the firm to transact at that price. Without the blockage discount comparability will improve.

Thus, it may be inferred that fair value is a broader term than the fair market value standard. In some respects, fair value encompasses fair market value.

7. Characteristics of Asset or liability that is the subject of measurement

A fair value measurement is for a particular asset or liability. The characteristics of the asset or liability that market participants would take into account when pricing the asset or liability at the measurement date shall be taken into account. Such characteristics include:

- the condition and location of the asset
- restrictions, if any, on the sale or use of the asset

The asset or liability measured at fair value might be either of the following:

- a stand-alone asset or liability (e.g. a financial instrument or a non-financial asset); or
- a group of assets, a group of liabilities or a group of assets and liabilities (e.g. a cash-generating unit or a business).

8. Principal (or most advantageous) market

The transaction to sell the asset or transfer the liability takes place either:

- in the principal market or
- in the absence of a principal market, in the most advantageous market.

9. Highest and best use for a non-financial asset

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use. The highest and best use of a non-financial asset takes into account the use of the asset that is

a. Physically Possible

b. Legally Permissible

c. Financially feasible

Highest or best use is usually (but not always) the current use – if for competitive reasons an entity does not intend to use the asset at its highest and best use, the fair value of asset still reflects its highest and best use by market participants (defensive value).

10. Fair value hierarchy

To promote consistency and comparability in fair value measurements, Ind AS 113 establishes a Fair Value hierarchy that categorises valuation related inputs into three levels, namely:

- **Level 1 inputs**

These inputs are quoted prices (unadjusted) in active markets for identical assets/liabilities that the entity can access at the measurement date. As a quoted price in an active market provides the most reliable evidence of Fair Value, it should be utilized to measure Fair Value whenever available.

Common examples of Level 1 inputs include listed equity securities and open ended mutual funds with daily published net asset values.

- **Level 2 inputs**

These inputs are other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 2 inputs include

(i) quoted prices for similar assets or liabilities in active markets;

(ii) quoted prices for identical/similar assets or liabilities in markets that are not active;

(iii) inputs other than quoted prices that are observable for the asset or liability, such as interest rates, yield curves, and implied volatilities; and

(iv) market-corroborated inputs.

Adjustments to Level 2 inputs vary depending on factors specific to the asset or liability, including

(i) condition or location of the asset;

(ii) the extent to which inputs relate to items that are comparable to the asset or liability; and

(iii) the volume or level of activity in the markets within which the inputs are observed.

- **Level 3 inputs**

These inputs are unobservable inputs for assets/liabilities. Unobservable inputs are used to measure Fair Value to the extent that relevant observable inputs are not available. The unobservable inputs should reflect the assumptions that market participants would use when pricing the asset or liability, including assumptions about risk.

An entity should develop unobservable inputs using the best information available. In developing unobservable inputs, an entity may begin with its own data, but it should adjust the data to ensure consistency with a market participant view point.

Common examples of Level 3 inputs include management prepared business forecasts utilized in a discounted cash flow model.

In estimating the Fair Value of an asset/liability, valuation techniques are used that are appropriate under the circumstances and for which sufficient data is available to measure Fair Value, thus maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

In some cases, a single valuation technique will be appropriate, for example when valuing an asset/liability using Level 1 quoted prices in an active market for identical assets/liabilities.

In other cases, multiple valuation techniques can be considered i.e. when valuing a cash-generating unit. If multiple valuation techniques are used, the results should be evaluated considering the reasonableness of the range of values.

Valuation techniques used to measure Fair Value should be applied consistently. However, a change in a valuation technique or its application is reasonable if the change results in a measurement that is equally or more representative of Fair Value under the circumstances (for example a change in the entity's product offerings, a change in business environment, a change in the industry or market conditions etc).

11. Regarding the highest and best use of a non-financial asset establishes the valuation premise used to measure the fair value of the asset

The highest and best use of a non-financial asset establishes the valuation premise used to measure the fair value of the asset, as follows:

- the highest and best use of a non-financial asset might provide maximum value to market participants through its use in combination with other assets as a group (as installed or otherwise configured for use) or in combination with other assets and liabilities (e.g., a business).

✓ if the highest and best use of the asset is to use the asset in combination with other assets or with other assets and liabilities, the fair value of the asset is the price that would be received in a current transaction to sell the asset assuming that the asset would be used with other assets or with other assets and liabilities and that those assets and liabilities (i.e. its complementary assets and the associated liabilities) would be available to market participants;

✓ liabilities associated with the asset and with the complementary assets include liabilities that fund working capital, but do not include liabilities used to fund assets other than those within the group of assets;

✓ assumptions about the highest and best use of a non-financial asset shall be consistent for all the assets (for which highest and best use is relevant) of the group of assets or the group of assets and liabilities within which the asset would be used.

- the highest and best use of a non-financial asset might provide maximum value to market participants on a stand-alone basis. If the highest and best use of the asset is to use it on a stand-alone basis, the fair value of the asset is the price that would be received in a current transaction to sell the asset to market participants that would use the asset on a stand-alone basis.

12. Consideration for determination of value based on highest and best use, where the highest and best use is different from the existing use

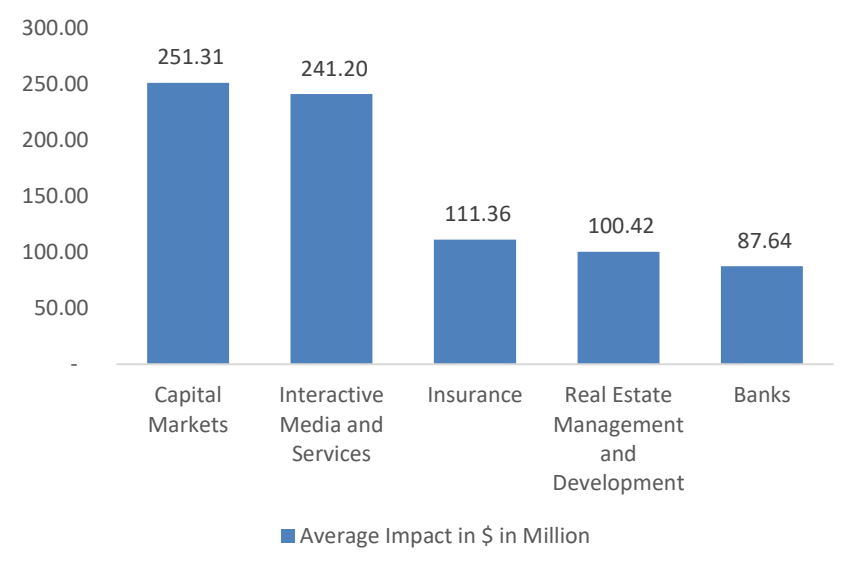
Where the highest and best use is different from the existing use, costs, to be incurred, if any for conversion of an asset to its highest and best use need to be considered for determination of value based on highest and best use.

13. Analysis of Application of Fair Value Accounting in S&P 500 Companies

An analysis of 505 Companies listed on S&P500 in identifying data related to fair value accounting since year 1990 has been done. In this empirical research, following are the findings:

- Since year 1990 to year 2004, fair value accounting is not at all observed.
- Immediately after the subprime crisis, in calendar year 2008, highest impact of fair value accounting was observed. Banks were hit most (Average impact of (-) $1,575.75 Million(m) for 19 entities) with highest impact onto JPMorgan Chase & Co. with impact of (-) $13,169m for Year 2008 & (-) $9,840m for Year 2009. Second highest impacting Bank was Bank of America Corporation with impact of (-) $ -12,136m for year 2008 but (+) 10,645m for year 2009.
- On the other hand, Capital Market Industry reported highest gains on account of fair value accounting in year 2008 to the tune of average (+) $99,717.53m for 22 entities. The Goldman Sachs Group, Inc. reported total gain of (+) $2,193,888m in year 2008 but reported loss of (-) $129,285m, (-) $2,371m, and (-) $9,328m for year 2009, 2010, and 2011 respectively.
- For recent financial reporting for calendar year 2018, capital market industry (represented by 22 companies) reported average impact of (+) $251.31m on account of fair value accounting.

5 Industries that has highest (+)ve impact on Fair Value A/c in Annual Report of Yr. 2018	No. of Entities under Study	Average Impact in $ in Million
Capital Markets	22	251.31
Interactive Media and Services	5	241.20
Insurance	21	111.36
Real Estate Management and Development	1	100.42
Banks	19	87.64



5 Industries that has highest (-)ve impact on Fair Value A/c in Annual Report of Yr. 2018	No. of Entities under Study	Average Impact in $ in Million
Diversified Financial Services	1	(118.00)
Media	12	(27.50)
Health Care Providers and Services	16	(14.89)
Independent Power and Renewable Electricity Producers	2	(7.00)
Electric Utilities	14	(6.38)

Industries that did not observe impact of fair value accounting are - Aerospace and Defence, Air Freight and Logistics, Auto Components, Automobiles, Commercial Services and Supplies, Communications Equipment, Distributors, Diversified Consumer Services, Diversified Telecommunication Services, Entertainment, Gas Utilities, Health Care Technology, Household Products, Software, Specialty Retail, Technology Hardware, Storage and Peripherals, and Tobacco.

14. Analysis of Fair Value Impact in Financial Statements of Nifty 50

A further study of the impact of fair value accounting in Indian context over Nifty 50 Companies since FY 1989-90 has been done and it is found that such impact was never observed until FY 2015-16.

Following table summarised key impacting areas such as Debt Equity Ratio, Net Profit Ratio, and Current Ratio in 23 different sectors representing 50 listed entities.

Type of Industry	Number of Entities under Consideration	Impact of Fair Value A/c in USD Million	Average Debt Equity Ratio in Year 2018	Average Debt Equity Ratio in Year 2015	Average Net Profit Ratio in Year 2018	Average Net Profit Ratio in Year 2015	Average Current Ratio for Year 2018	Average Current Ratio for Year 2015
Automobiles	6	76.09	37.65%	43.56%	11.76%	7.86%	1.34	1.30
Banks *(Could not achieve exact data so excluded from Average Column)*	7	-	0.00%	0.00%	19.77%	29.05%	-	-
Chemicals	2	3.81	39.18%	31.96%	11.94%	9.69%	1.76	1.47
Construction and Engineering	1	(360.12)	178.89%	197.29%	6.09%	5.12%	1.30	1.22
Construction Materials	2	25.58	77.04%	45.14%	5.98%	7.04%	0.97	0.90
Consumer Finance	1	32.98	377.09%	555.34%	30.66%	26.85%	3.17	3.39
Diversified Telecommunication Services	1	-	0.00%	15.24%	37.66%	17.08%	4.19	1.13
Electric Utilities	1	0.99	241.62%	250.38%	27.39%	28.58%	0.43	0.39
Food Products	2	4.24	3.61%	6.68%	12.21%	7.87%	2.23	1.41
Gas Utilities	1	-	7.72%	51.12%	8.81%	5.21%	0.97	0.97
Household Products	1	18.75	0.00%	1.06%	14.67%	13.65%	1.31	1.08
Independent Power and	1	-	124.44%	123.88%	11.97%	12.39%	0.86	1.16

Renewable Electricity Producers								
Insurance	1	244.10	188.43%	173.57%	8.09%	15.63%	1.17	0.73
IT Services	5	(2.97)	8.53%	5.64%	17.62%	18.74%	3.04	2.75
Media	1	(1.04)	20.14%	0.04%	22.12%	20.02%	3.70	3.61
Metals and Mining	4	76.11	115.12%	167.34%	9.02%	-4.96%	1.09	1.17
Oil, Gas and Consumable Fuels	5	11.67	56.80%	60.58%	6.64%	7.96%	0.84	1.31
Pharmaceuticals	3	11.35	30.94%	28.77%	8.06%	14.01%	2.00	1.87
Textiles, Apparel and Luxury Goods	1	3.00	33.24%	3.24%	7.01%	6.85%	1.76	1.80
Thrifts and Mortgage Finance	1	71.53	0.00%	0.00%	22.62%	29.71%	-	-
Tobacco	1	116.41	0.07%	0.84%	25.94%	24.88%	2.85	2.10
Transportation Infrastructure	1	(1.42)	104.68%	162.27%	32.44%	37.62%	3.56	1.24
Wireless Telecommunication Services	1	4.24	142.10%	121.01%	1.33%	5.63%	0.43	0.42
Grand Total	**50**	**20.70**	**55.28%**	**63.42%**	**14.15%**	**14.09%**	**1.47**	**1.30**

From above table, it can be easily identified that after usage of fair value accounting, average Debt Equity Ratio is improved from 63.42% to 55.28%, Net Profit Ratio is marginally improved from 14.09% to 14.15%, and Current Ratio is improved from average 1.30 to 1.47.

15. Factors influencing Fair Value

The estimation of Fair Value assumes that the time period required to consummate a transaction hypothetically began at a point in time in advance of the Measurement Date such that the hypothetical exchange culminates on the Measurement Date.

Therefore, Fair Value should reflect the actual amount that a seller would receive in an Orderly Transaction under current market conditions at the Measurement Date. An additional discount for Marketability (where

Marketability is defined as the time required to complete a transaction) is not appropriate.

However, liquidity or illiquidity (meaning the frequency of transactions) is taken into account by Market Participants and therefore should be a factor used in assessing Fair Value.

16. Old Vs. New Definition of Fair Value

There are some jurisdictions/ Non IFRS Countries that still define fair value using "willing buyer and willing seller". The new definition is based on 'an exit price from the perspective of a market participant that holds the asset or owes the liability at the measurement date'

The previous definition of fair value (In Indian Context):

- did not specify whether an entity is buying or selling the asset;
- was unclear about what is meant by settling a liability because it did not refer to the creditor, but to knowledgeable, willing parties; and
- did not state explicitly whether the exchange or settlement takes place at the measurement date or at some other date.

New definition of fair value (under Ind AS 113 in Indian Context) conveys more clearly that fair value is a market-based measurement, and not an entity-specific measurement, and that fair value reflects current market conditions (which reflect market participants', not the entity's, current expectations about future market conditions).

17. Relevance of Exit Price in Fair Value

An exit price of an asset or a liability embodies expectations about the future cash inflows and outflows associated with the asset or liability from the perspective of a market participant that holds the asset or owes the liability at the measurement date. An entity generates cash inflows from an asset by using the asset or by selling it. Even if an entity intends to generate cash inflows from an asset by using it rather than by selling it, an exit price embodies expectations of cash flows arising from the use of the asset by selling it to a market participant that would use it in the same way. That is because a market participant buyer will pay only for the benefits it expects to generate from the use (or sale) of the asset.

Thus, an exit price is always a relevant definition of fair value for assets, regardless of whether an entity intends to use an asset or sell it.

Similarly, a liability gives rise to outflows of cash (or other economic resources) as an entity fulfils the obligation over time or when it transfers the obligation to another party. Even if an entity intends to fulfil the obligation over time, an exit price embodies expectations of related cash outflows because a market participant transferee would ultimately be required to fulfil the obligation.

Thus, an exit price is always a relevant definition of fair value for liabilities, regardless of whether an entity intends to fulfil the liability or transfer it to another party that will fulfil it.

18. Practical Challenges in Implementing IFRS 13

Key information related to the fair value accounting and disclosure can be described as

- measurement hierarchy,
- valuation techniques and
- inputs (Level 1, Level 2, and Level 3), and iv) quantitative information about significant unobservable inputs.

There are challenges in assessing whether a market is active, and whether an input is significant and observable, and they can lead to inconsistent classification within the fair value measurement hierarchy. Inconsistent assessment of whether a market is active can also lead to inconsistent fair value measurements because Level 1 inputs are used without adjustments, whereas Level 2 inputs can be adjusted.

Additionally, it is difficult to assess highest and best use (HABU) of the asset under consideration. Often, as a practical expedient, most assessments result in a conclusion that current use is the highest and best use.

Specific challenges arise when using third-party pricing, and when deciding whether assessment is quantitative or qualitative, or is at one point in time or over time. This may result in diversity in practice with respect to what is classified as Level 3 measurement.

There are challenges in measuring biological assets when there are no market inputs. These challenges arise mostly for growing produce, with differences arising in assessing when to start recognising growing produce and how to measure it, and in carrying out an overall assessment of whether the measurement is reliable.

19. The Myth

A perception that Level 3 measurements are less relevant to users of financial statements than Level 2 measurements, and that Level 2 measurements are less relevant to them than Level 1 measurements is a myth. Rather, fair value measurement across all levels of hierarchy is value relevant.

20. Presentation of Fair Value Hierarchy in Annual Financial Statements

Despite 2 years to successful adoption of Ind AS (Indian version of IFRS), entities are still confused as to hierarchy of fair value of few instruments such as preference shares (as an asset), embedded derivatives designated as cash flow hedge, and various financial liabilities. Following table presents acceptable and consistent application of hierarchical presentation of fair values of financial instruments.

₹ crore

Particulars	Note	As at 31-3-2019				As at 31-3-2018			
		Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Financial assets:									
Investments at FVTPL:									
(i) Equity shares (other than those held in subsidiary & assosiate companies)	5	31.67	–	65.68	97.35	72.27	–	64.37	136.64
(ii) Preference shares	5	–	888.68	–	888.68	–	1085.08	–	1085.08
(iii) Mutual fund units	10	1631.69	–	–	1631.69	1070.80	–	–	1070.80
(iv) Bonds	10	656.38	–	–	656.38	424.46	–	–	424.46
(v) Derivative instruments not designated as cash flow hedges	7,15	–	9.84	–	9.84	–	3.77	–	3.77
(vi) Embedded derivative Instruments not designated as cash flow hedges	7,15	–	12.40	–	12.40	–	21.33	–	21.33

₹ crore

Particulars	Note	As at 31-3-2019				As at 31-3-2018			
		Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Investments at FVTOCI									
(i) Debt instruments viz. government securities, bonds and debentures	10	2406.91	–	–	2406.91	2849.72	–	–	2849.72
(ii) Derivative financial instruments designated as cash flow hedges	7,15	–	602.52	–	602.52	–	358.49	–	358.49
(iii) Embedded derivative financial instruments designated as cash flow hedges	7,15	–	0.18	–	0.18	–	1.96	–	1.96
Total		4726.65	1513.62	65.68	6305.95	4417.25	1470.63	64.37	5952.25
Financial Liabilities:									
(i) At FVTPL - Designated as FVTPL:									
(a) Derivative instruments not designated as cash flow hedges	20,26	–	6.86	–	6.86	–	13.52	–	13.52
(b) Embedded derivative instruments not designated as cash flow hedges	20,26	–	3.26	–	3.26	–	15.79	–	15.79
(ii) Designated as FVTOCI:									
(a) Derivative financial instruments designated as cash flow hedges	20,26	–	234.05	–	234.05	–	132.19	–	132.19
(b) Embedded derivative financial instruments designated as cash flow hedges	20,26	–	91.54	–	91.54	–	121.34	–	121.34
Total		–	335.71	–	335.71	–	282.84	–	282.84

Valuation technique and key inputs used to determine fair value:

1. Level 1 : Mutual funds, bonds, debentures and government securities- Quoted price in the active market.
2. Level 2 : (a) Derivative instrument – Mark to market on forward covers and embedded derivative instruments is based on forward exchange rates at the end of reporting period and discounted using G-sec rate plus applicable spread.
   (b) Preference Shares – Future cash flows are discounted using G- sec rate plus applicable spread as at reporting date.

(Above example is from Annual Report of Larsen & Toubro for FY 2018-19)

21. Costs Involved in Annual Application of IFRS 13

Following disclosures relating to Level 3 fair value measurements are considered to be the most costly to prepare:

- reconciliation of changes in Level 3 fair value measurements (reconciliation);
- quantitative analysis of the sensitivity of Level 3 measurement to reasonably possible changes in significant unobservable inputs (sensitivity analysis);
- quantitative information about significant unobservable inputs; and
- information on unrealised gains and losses relating to Level 3 measurements.

Following Example illustrates above 4 points.

Movement of items measured using unobservable inputs (Level 3):

₹ crore

Particulars	Equity Investment in Tidel Park Limited
Balance as at 1-4-2017	55.94
Gains/(losses) recognised in Profit or Loss during 2017-18	8.32
Balance as at 31-3-2018	64.27
Gains/(losses) recognised in Profit or Loss during 2018-19	1.32
Balance as at 31-3-2019	65.58

Significant unobservable inputs used in level 3 fair value measurements and sensitivity of the fair value measurement to changes in unobservable inputs:

₹ crore

Particulars	Fair Value as at 31-3-2019	*Fair Value as at 31-3-2018*	Significant unobservable inputs	Sensitivity
Equity Investment in "Tidel Park Limited"	65.58	*64.27*	31-3-2019: 1. Net realisation per month ₹ 30.90 per sq/ft. 2. Capitalisation rate 12.25% 31-3-2018: 1. Net realisation per month ₹ 30 per sq/ft. 2. Capitalisation rate 12%	31-3-2019 : 1% change in net realisation would result in +/- ₹ 0.32 crore (post tax +/- ₹ 0.21 crore). 25 bps change in capitalisation rate would result in +/- ₹ 0.63 crore (post tax +/- ₹ 0.41 crore). 31-3-2018 : 1% change in net realisation would result in +/- ₹ 0.31 crore (post tax +/- ₹ 0.20 crore). 25 bps change in capitalisation rate would result in +/- ₹ 0.64 crore (post tax +/- ₹ 0.42 crore).

(Above example is from Annual Report of Larsen & Toubro for FY 2018-19)

22. A Unit of Accounting

Fair Value measurement guidance articulated in both ASC Topic 820 and IFRS 13 states: "An entity shall measure the Fair Value of an asset or liability using the assumptions that Market Participants would use when pricing the asset or liability, assuming that Market Participants act in their economic best interest."3 Neither ASC Topic 820 nor IFRS 13 specify the Unit of Account for assets or liabilities, but rely on other accounting standards to do so.

In US GAAP, ASC Topic 946 specifies that an Investment company must measure its Investments in debt and equity securities at Fair Value. An entity

then refers to ASC Topic 820 for Fair Value measurement guidance. In the absence of more specific Unit of Account guidance from ASC Topic 946, entities measure the Fair Value of their debt and equity securities consistently with how Market Participants would act in their economic best interest.

One interpretation is that because IFRS 10 and IAS 28 refer to measuring Fair Value in accordance with IFRS 9, the Unit of Account is determined by IFRS 9 and is a single share. However, actual transactions for non-actively traded securities rarely take place on a single share basis. Another interpretation is that the Unit of Account is determined by IFRS 10, IAS 27 and IAS 28 as the "Investment", which is not necessarily a single share. This interpretation more fully matches how Market Participants transact. Practically, it is observed that unit of Account would be the entire interest if that is the basis upon which Market Participants would transact.

23. Fair Valuation in Unquoted Market – Venture Capital (VC) Series A, B, and C Funding

Some Funds/ VCs invest in multiple securities or tranches of the same Investee Company. If a Market Participant would be expected to transact all positions in the same underlying Investee Company simultaneously, for example separate Investments made in series A, series B, and series C, then Fair Value would be estimated for the aggregate Investment in the Investee Company.

If a Market Participant would be expected to transact separately, for example purchasing series A independent from series B and series C, or if Debt Investments are purchased independent of equity, then Fair Value would be more appropriately determined for each individual financial instrument.

24. Calibration – Tool for Valuers

Calibration is a powerful tool. It can assist in catching the impacts of control and Liquidity, among other inputs, on a Fair Value measurement.

Calibration in Relative Valuation

For illustrative purposes, assume an Investment is purchased at Fair Value at an implied 5x EBITDA multiple. At the time of purchase, comparable companies are trading at 7x EBITDA. When compared to the comparable companies, the 5x entry multiple incorporates Liquidity, control, and other differences between the Investment and comparable companies. At future Measurement Dates, judgement would be applied to determine how to move

the acquisition multiple of 5x in relation to changes in the multiple of comparable companies.

For example, if the comparable companies moved from 7x to 11x, the Valuer may conclude that the 2 turns of EBITDA difference at entry (5x vs 7x) should be maintained, resulting in a Fair Value estimate derived by applying a 9x multiple to the Investee Company's updated EBITDA. Similar judgements would be made using inputs for other Valuation Techniques. The Valuer would not automatically use the entry difference (2x) at future valuation dates, but would determine how much a Market Participant would be willing to pay for the Investment using the calibrated entry inputs as a point of reference.

Calibration in Income Based Valuation

The discount rate implied at acquisition can be deconstructed into its component parts based on the weighted average cost of capital, which will, in particular, provide a basis for a company specific risk premium, also known as alpha. The components of the weighted average cost of capital would then be updated at future Measurement Dates based on then current market conditions (with adjustments to the alpha based on company specific facts and circumstances) and applied to most likely cash flows at that point in time.

25. Application of Calibration in finding Acquisition Multiple Vs. Quoted Company Trading Multiple

Assume the acquisition price of an Investment was deemed Fair Value (e.g. an Orderly Transaction price) and represented an EBITDA multiple of 5 when comparable company EBITDA multiples were 8. In future periods, when estimating Fair Value judgement is required as to whether or not the 30% discount to comparable company multiples should be maintained or should change at each subsequent Measurement Date.

26. Backtesting – Current Fairness of Previous Fair Value

Valuers should seek to understand the substantive differences that legitimately occur between the exit price and the previous Fair Value assessment. Backtesting is the process of comparing an actual liquidity event (sale, IPO, etc.) to the most recently determined Fair Value estimate. When the valuation implied by an actual Realisation or liquidity event is compared to Fair Value estimates at the most recent Measurement Dates, the Valuer is provided with additional information to help assess the rigour of the Fair Value estimation

process. This does not mean that the exit price should equal the previous Fair Value measurement, but should be used as an input to continuously improve the rigour of the Fair Value estimates. Over time, Backtesting provides the Valuer with a tool to assess whether there are inherent biases (e.g. overly conservative assumptions) built into the valuation process and thereby identify areas for potential improvement.

27. Using Industry Benchmarks

The use of industry benchmarks for valuation is only likely to be reliable and therefore appropriate as the main basis of estimating Fair Value in limited situations and is more likely to be useful as a sanity check of values produced using other techniques.

28. Conclusion

In an Indian context, Fair Value information enhanced the quality of analysts' earnings forecasts through improving forecasting accuracy, frequency, timeliness, and specificity level. It has also raised the quality of accounting information by improving its transparency, timeliness, reliability, comparability and, in particular, its relevance.

Appendix "B"

ICAI Valuation Standard 103

Valuation Approaches and Methods

*(The ICAI Valuation Standard includes paragraphs set in **bold** type and plain type, which have equal authority. Paragraphs in bold type indicate the main principles. (This ICAI Valuation Standard should be read in the context of Framework for the Preparation of Valuation Report in accordance with ICAI Valuation Standards)*

Objective

1. **This Standard:**

   (a) **defines the approaches and methods for valuing an asset; and**

   (b) **provides guidance on use of various valuation approaches and methods.**

2. The objective of this Standard is to provide guidance on different valuation approaches and methods that can be adopted to determine the value of an asset.

3. **The principles enunciated in this Standard shall be applied in conjunction with the principles prescribed and contained in the *Framework for the Preparation of Valuation Report in accordance with ICAI Valuation Standards*.**

Scope

4. **Subject to paragraph 7, this Standard shall be applied in selecting the appropriate valuation approaches and methodologies in determining the value of an asset, liability or a business.**

5. This Standard provides guidance on use of multiple approaches and methods.

6. This Standard does not provide an exhaustive list of all the valuation methods. For example, methods applicable for valuation of intangible

assets and financial instruments have been covered briefly in this Standard and detailed guidance has been provided in the relevant Standards.

7. This Standard does not apply in cases where a *valuer* is required to adopt valuation bases that are prescribed by a statute or regulation. In such cases, the prescribed base shall apply and the valuer shall adopt specific methods or formulae as have been laid down under the statute or regulation. Adequate information should be disclosed that enables users of the valuation reports to understand the basis of the valuation report and the nature and extent of impact on the findings therein.

Valuation Approaches

8. **This Standard provides guidance for following three main valuation approaches:**

   (a) Market approach;

   (b) Income approach; and

   (c) Cost approach.

9. A *valuer* can make use of one or more of the processes or methods available for each approach.

10. The appropriateness of a valuation approach for determining the value of an asset would depend on valuation bases and premises. In addition, some of the key factors that a *valuer* shall consider while determining the appropriateness of a specific valuation approach and method are:

    (a) nature of asset to be valued;

    (b) availability of adequate inputs or information and its reliability;

    (c) strengths and weakness of each valuation approach and method; and

    (d) valuation approach/method considered by market participants.

11. A *valuer* shall be responsible to select the appropriate valuation approach(es) and method(s) as there may not be a single approach/method that is best suited for valuation in every situation.

12. A *valuer* may consider adopting one distinct valuation approach/method or multiple valuation approaches/methods as may be appropriate to

derive a reliable value. When evaluating a value resulting from use of multiple valuation approaches/methods, a *valuer* shall consider the reasonableness of the range of values. If the values under different approaches and/or methods significantly differ from each other, it would not be appropriate to derive the final value merely by weightages accorded to differing values. The *valuer* shall consider the factors given in paragraph 10 to determine whether the chosen approaches and methodologies are appropriate or not.

13. The valuation approaches and methods shall be selected in a manner which would maximise the use of relevant observable inputs and minimise the use of unobservable inputs. The price information gathered from an active market is generally considered to be a strong indicator of value.

Market Approach

14. **Market approach is a valuation approach that uses prices and other relevant information generated by market transactions involving identical or comparable (i.e., similar) assets, liabilities or a group of assets and liabilities, such as a business.**

15. The following are some of the instances where a *valuer* applies the market approach:

    (a) where the asset to be valued or a comparable or identical asset is traded in the active market;

    (b) there is a recent, orderly transaction in the asset to be valued; or

    (c) there are recent comparable orderly transactions in identical or comparable asset(s) and information for the same is available and reliable.

16. In some instances, a v*aluer* may consider using other valuation approaches instead of Market approach or in combination with Market approach, such as:

    (a) where the asset has fewer identical or comparable assets (market comparable);

    (b) the asset to be valued or its market comparables are not traded in the active market;

(c) sufficient information on the comparable transaction(s) is not available;

(d) there is no recent transaction either in the asset or in the market comparables; or

(e) there are material differences between the asset to be valued and the market comparables, which require significant adjustments.

17. The following valuation methods are commonly used under the market approach:

(a) Market Price Method (see paragraphs 18 -20);

(b) Comparable Companies Multiple (CCM) Method (see paragraphs 21-28); and

(c) Comparable Transaction Multiple (CTM) Method (see paragraphs 29-48).

Market Price Method

18. A *valuer* shall consider the traded price observed over a reasonable period while valuing assets which are traded in the active market.

19. A *valuer* shall also consider the market where the trading volume of asset is the highest when such asset is traded in more than one active market.

20. A *valuer* shall use average price of the asset over a reasonable period. The *valuer* should consider using weighted average or volume weighted average to reduce the impact of volatility or any one time event in the asset.

Comparable Companies Multiple (CCM) Method

21. ***Comparable Companies Multiple Method*, also known as *Guideline Public Company Method*, involves valuing an asset based on market multiples derived from prices of market comparables traded on active market.**

22. The following are the major steps in deriving a value using the CCM method:

(a) identify the market comparables;

(b) select and calculate the market multiples of the identified market comparables;

(c) compare the asset to be valued with the market comparables to understand material differences; and make necessary adjustments to the market multiple to account for such differences, if any;

(d) apply the adjusted market multiple to the relevant parameter of the asset to be valued to arrive at the value of such asset; and

(e) if value of the asset is derived by using market multiples based on different metrics/parameters, the *valuer* shall consider the reasonableness of the range of values.

23. While identifying and selecting the market comparables, a *valuer* shall consider the factors such as-

(a) industry to which the asset belongs;

(b) geographic area of operations;

(c) similar line of business, or similar economic forces that affect the asset being valued; or

(d) other parameters such as size (for example - revenue, assets, etc), stage of life-cycle of the asset, profitability, diversification, etc.

This list is not an exhaustive list, there may be certain other factors which a *valuer* shall consider while identifying and selecting the market comparables.

24. The market multiples are generally computed on the basis of following inputs:

(a) trading prices of market comparables in an active market; and

(b) financial metrics such as Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA), Profit After Tax (PAT), Sales, Book Value of assets, etc.

25. If market participants are using market multiple based on non-financial metrics for valuing an asset, such multiples may also be considered by the *valuer* in addition to market multiple based on the financial metrics. For example, Enterprise Value (EV) / Tower in case of tower telecom companies, EV/Tonne in case of cement industry, etc.

26. A *valuer* shall preferably use several market comparables rather than relying on a single comparable.

27. A v*aluer* shall exercise judgement while selecting the multiple in case where the market multiple computed for each comparable is significantly different from the other.

28. The following are some of the differences between the asset to be valued and market comparable that the *valuer* may consider while making adjustments to the market multiple:

    (a) size of the asset;

    (b) geographic location;

    (c) profitability;

    (d) stage of life-cycle of the asset;

    (e) diversification;

    (f) historical and expected growth; or

    (g) management profile.

Comparable Transaction Multiple (CTM) Method

29. ***Comparable Transaction Multiple Method*, also known as '*Guideline Transaction Method'* involves valuing an asset based on transaction multiples derived from prices paid in transactions of asset to be valued /market comparables (comparable transactions**).

30. The price paid in comparable transactions generally include control premium, except where transaction involves acquisition of non-controlling/minority stake.

31. The following are the major steps in deriving a value using the CTM method:

    (a) identify comparable transaction appropriate to the asset to be valued;

    (b) select and calculate the transaction multiples from the identified comparable transaction;

(c) compare the asset to be valued with the market comparables and make necessary adjustments to the transaction multiple to account where differences, if any existed;

(d) apply the adjusted transaction multiple to the relevant parameter of the asset to be valued to arrive at the value of such asset; and

(e) if valuation of the asset is derived by using transaction multiples based on different metrics or parameters, the *valuer* shall consider the reasonableness of the range of values and exercise judgement in determining a final value.

32. While identifying and selecting the comparable transaction, a *valuer* may consider the factors such as-

(a) transactions that have been consummated closer to the valuation date are generally more representative of the market conditions prevailing during that time;

(b) the selected comparable is an orderly transaction;

(c) availability of sufficient information on the transactions to enable the *valuer* to reasonably understand the market comparable and derive the transaction multiple; or

(d) availability of information on transaction from reliable sources such as regulatory filings, industry magazines, Merger & Acquisition databases, etc.

33. The transaction multiples are generally computed based on the following two inputs:

(a) price paid in the comparable transaction; and

(b) financial metrics such as EBITDA, PAT, Sales, Book Value, etc of the market comparable.

Even multiples based on non-financial metrics such as EV per room for hotels, EV/Bed for hospitals) can be considered.

34. A *valuer* shall preferably use multiple comparable transactions of recent past rather than relying on a single transaction.

35. The following are some of the differences between the asset to be valued and comparable transaction that the *valuer* may consider while making adjustments to the transaction multiple:

(a) size of the asset;

(b) geographic location;

(c) profitability;

(d) stage of life-cycle of the asset;'

(e) diversification;

(f) historical and expected growth;

(g) management profile such as private ownership vs. public sector undertaking; or

(h) conditions if any governing the comparable transaction such as deferred payment of consideration contingent on achievement of certain milestones).

Discounts and Control Premium

36. A *valuer* shall evaluate and make adjustments for differences between the asset to be valued and market comparables/comparable transactions. The most common adjustment under CCM method and CTM method pertain to 'Discounts' and 'Control Premium'.

37. 'Discounts' include Discount for Lack of Marketability (DLOM) and Discount for Lack of Control (DLOC).

Discount for Lack of Marketability (DLOM)

38. **DLOM is based on the premise that an asset which is readily marketable (such as frequently traded securities) commands a higher value than an asset which requires longer marketing period to be sold (such as securities of an unlisted entity) or an asset having restriction on its ability to sell (such as securities under lock-in-period or regulatory restrictions).**

39. Generally, restrictions on marketability that are only inherent in the asset to be valued shall be considered while valuing the asset. Marketability restrictions that are specific to a particular owner of the asset are not generally considered for discount adjustment.

40. Determining an appropriate level of DLOM can be a complex and subjective process. Accordingly, the specific nature and characteristics of the asset and the facts and circumstances surrounding the valuation should be considered.

41. A *valuer* shall use his professional judgement while applying DLOM and consider the relevant factors including but not limited to-

    (a) size and nature;

    (b) time and costs associated with marketing or for making a public offer;

    (c) restrictions on transferability;

    (d) history of past transactions;

    (e) exit rights; or

    (f) lack of or limitation to access to information.

Control Premium and Discount for Lack of Control (DLOC)

42. ***Control Premium generally represents the amount paid by acquirer for the benefits it would derive by controlling the acquiree's assets and cash flows.***

43. **Control Premium is an amount that a buyer is willing to pay over the current market price of a publicly-traded company to acquire a controlling interest in an asset. It is opposite of discount for lack of control to be applied in case of valuation of a non-controlling/minority interest.**

44. Generally, on acquisition an acquirer can derive benefits from the following:

    (a) potential synergies as a result of merger/combination; and

    (b) ability to influence acquiree's operating, financial, or corporate governance policies relating to appointment of board members, declaration of dividends, etc.

45. Under the CCM method, the value of the asset is on a minority interest/non-controlling interest as the market multiples of market comparables are derived from their respective traded price in the active market. The traded price of such comparables may not include the benefit derived from controlling the market comparable's assets and cash flows. Therefore, while applying the CCM method to value the asset having controlling interest, a control premium may be considered.

46. Under the CTM method, the transaction price generally includes price paid for control premium. Therefore, while valuing the asset for a non-controlling/minority interest, DLOC may be considered.

47. Determining an appropriate level of Control Premium and DLOC can be a complex and subjective process. Accordingly, the specific nature and characteristics of the asset and the facts and circumstances surrounding the valuation should be considered.

48. A *valuer* shall use his professional judgement while applying control premiums and DLOC, considering the factors such as amount/ extent of control in the asset to be valued, distribution of control of the remaining interest in the subject entity, statutory provision relating to protection of minority shareholders; the shareholder protection restrictions contained in the articles of incorporation, the bye-laws and/or the shareholders' agreement, blockage discount, etc.

Income Approach

49. **Income approach is a valuation approach that converts maintainable or future amounts (e.g., cash flows or income and expenses) to a single current (i.e., discounted or capitalised) amount. The fair value measurement is determined on the basis of the value indicated by current market expectations about those future amounts.**

50. This approach involves discounting future amounts (cash flows/income/cost savings) to a single present value.

51. The following are some of the instances where a *valuer* may apply the income approach:

    (a) where the asset does not have any market comparable or comparable transaction;

    (b) where the asset has fewer relevant market comparables; or

    (c) where the asset is an income producing asset for which the future cash flows are available and can reasonably be projected.

52. In some instances, a *valuer* may consider using other valuation approaches instead of income approach or in combination with income approach, such as, where –

    (a) the asset has not yet started generating income or cash flows, e.g., projects under development;

(b) there is significant uncertainty on the amount and timing of income/future cash flows, e.g., start-up companies; or

(c) the client does not have access to the information relating to the asset being valued, e.g., minority shareholder may not have access to projections/budgets or growth expectations specific to the business.

53. Some of the common valuation methods under income approach are as follows:

(a) Discounted Cash Flow (DCF) Method (see paragraphs 54- 83);

(b) Relief from Royalty (RFR) Method (see paragraphs 84-86);

(c) Multi-Period Excess Earnings Method (MEEM) (see paragraphs 87-89);

(d) With and Without Method (WWM) (see paragraphs 90-91); and

(e) Option pricing models such as Black-Scholes-Merton formula or binomial (lattice) model (see paragraphs 92-94).

Discounted Cash Flow ('DCF') Method

54. **The DCF method values the asset by discounting the cash flows expected to be generated by the asset for the explicit forecast period and also the perpetuity value (or terminal value) in case of assets with indefinite life**.

55. The DCF method is one of the most common methods for valuing various assets such as shares, businesses, real estate projects, debt instruments, etc.

56. This method involves discounting of future cash flows expected to be generated by an asset over its life using an appropriate discount rate to arrive at the present value.

57. The following are the major steps in deriving a value using the DCF method:

(a) Consider the projections to determine the future cash flows expected to be generated by the asset;

(b) analyse the projections and its underlying assumptions to assess the reasonableness of the cash flows;

(c) choose the most appropriate type of cash flows for the asset, *viz*., pre-tax or post-tax cash flows, free cash flows to equity or free cash flows to firm;

(d) determine the discount rate and growth rate beyond explicit forecast period; and

(e) apply the discount rate to arrive at the present value of the explicit period cash flows and for arriving at the terminal value.

58. While using the DCF method, it may also be necessary to make adjustments to the valuation to reflect matters that are not captured in either the cash flow forecasts or the discount rate adopted.

59. In case of the DCF method, projected cash flows reflect the benefits of control and accordingly the value of asset arrived under this method is not to be grossed up for control premium.

60. A *valuer* shall use his professional judgement while applying the DLOM / DLOC. It may include adjustments for discount for the marketability of the interest being valued or whether the interest being valued is non-controlling interest in the business.

61. The following are important inputs for the DCF method:

(a) Cash flows;

(b) Discount rate; and

(c) Terminal value

Cash Flows

62. In most cases, the projections shall comprise the statement of profit & loss, balance sheet, cash flow statement, along with the underlying key assumptions. However, in certain cases, if balance sheet and cash flow statement are not available, details of future capital expenditure and working capital requirements may also suffice.

63. The projections reflect the accrual based accounting income and expenses. For arriving at the cash flows, non-cash expenses, such as depreciation and amortisation, shall be added back. Further, cash outflows relating to capital expenditure and incremental working capital requirements, if any shall be deducted.

64. Generally, historical financial statements are used as the base for preparation of projections. If in future, changes in circumstances are

anticipated the assumptions underlying the projections shall reflect differences on account of such differences *vis-à-vis* the historical financial statements.

65. A *valuer* shall by employing procedures such as ratio analysis, trend analysis to determine historical trends, gather necessary information to assess risks inherent in the achievability of the projections.

66. The fact that the *valuer* considers the projections in estimating the value of the asset shall not be construed as the *valuer* being associated with or being a party to such projections.

67. The length of the period of projections (explicit forecast period) shall be determined based on the following factors:

    (a) *Nature of the asset*- where the business is of cyclical nature, explicit forecast period should ordinarily consider one entire cycle (for example cement business).

    (b) *Life of the asset*- In case of asset with definite life, explicit period should be for the entire life of the asset (for example, debt instruments, Build Operate Transfer (BOT) road projects).

    (c) *Sufficient period*- The forecast period should have a length of time that is sufficient for the asset to achieve stable levels of operating performance.

    (d) *Reliable data*- The data that are used for projecting the cash flows, should be reliable.

68. The following are the cash flows which are used for the projections*:*

    (a) Free Cash Flows to Firm (FCFF): FCFF refers to cash flows that are available to all the providers of capital, i.e. equity shareholders, preference shareholders and lenders. Therefore, cash flows required to service lenders and preference shareholders such as interest, dividend, repayment of principal amount and even additional fund raising are not considered in the calculation of FCFF.

    (b) Free Cash Flows to Equity (FCFE): FCFE refers to cash flows available to equity shareholders and therefore, cash flows after interest, dividend to preference shareholders, principal repayment and additional funds raised from lenders / preference shareholders are considered.

Asset value is independent of the manner of finance, hence, FCFF is most commonly used to arrive at an asset value. However, the value of an asset is independent of the manner in which it is financed.

Discount Rate

69. ***Discount Rate* is the return expected by a market participant from a particular investment and shall reflect not only the time value of money but also the risk inherent in the asset being valued as well as the risk inherent in achieving the future cash flows.**

70. The following discount rates are most commonly used depending upon the type of the asset:

    (a) cost of equity;

    (b) weighted average cost of capital;

    (c) Internal Rate of Return ('IRR');

    (d) cost of debt; or

    (e) yield.

71. Different methods are used for determining the discount rate. The most commonly used methods are as follows:

    (a) Capital Asset Pricing Model (CAPM) for determining the cost of equity.

    (b) Weighted Average Cost of Capital (WACC) is the combination of cost of equity and cost of debt weighted for their relative funding in the asset.

    (c) Build-up method (generally used only in absence of market inputs).

72. A *valuer* may consider the following factors while determining the discount rate:

    (a) type of asset being valued such as example debt, preference shares, business, real estate, intangibles, etc.;

    (b) life of the asset such as the risk-free rate used for determining the cost of equity in the CAPM model differs for an asset with a one-year life *vs* an indefinite life;

(c) geographic location of the asset;

(d) currency in which the projections have been prepared;

(e) type of cash flows;

(f) risk in achieving the projected cash flows;

(g) cash flows used for the projections as FCFE needs to be discounted by Cost of Equity whereas FCFF to be discounted using WACC;

(h) discount the cash flows in the functional currency using a discount rate appropriate for that functional currency; and

(i) pre-tax cash flows need to be discounted by pre-tax discount rate and post-tax cash flows to be discounted by post-tax discount rate;

73. *A valuer* shall include where appropriate risk adjustments that a market participant shall expect as compensation for uncertainty inherent in the cash flows.

Terminal Value

74. ***Terminal value* represents the present value at the end of explicit forecast period of all subsequent cash flows to the end of the life of the asset or into perpetuity if the asset has an indefinite life.**

75. In case of assets having indefinite or very long useful life, it is not practical to project the cash flows for such indefinite or long periods. Therefore, the *valuer* needs to determine the terminal value to capture the value of the asset at the end of explicit forecast period.

76. There are different methods for estimating the terminal value. The commonly used methods are :

(a) Gordon (Constant) Growth Model;

(b) Variable Growth Model;

(c) Exit Multiple; and

(d) Salvage / Liquidation value

Gordon (Constant) Growth Model

77. The terminal value under this method is computed by dividing the perpetuity maintainable cash flows with the discount rate as reduced by the stable growth rate.

78. The estimation of stable growth rate is of great significance because even a minor change in stable growth rate can have an impact on the terminal value and the value of the asset too.

Variable Growth Model

79. The Constant Growth Model assumes that the asset grows (or declines) at a constant rate beyond the explicit forecast period whereas the Variable Growth Model assumes that the asset grows (or declines) at variable rate beyond the explicit forecast period.

Exit Multiple

80. The estimation of terminal value under this method involves application of a market-evidence based capitalisation factor or a market multiple (for example, Enterprise Value (EV) / Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA), EV / Sales) to the perpetuity earnings / income.

81. The multiple needs to be estimated based on multiples of comparable assets and hence, the principles laid down under the market approach section of this standard should be complied with.

Salvage or Liquidation value

82. In some cases, such as mine or oil fields, the terminal value has limited or no relationship with the cash flows projected for the explicit forecast period. For such assets, the terminal value is calculated as the salvage or realisable value less costs to be incurred for disposing of such asset.

Terminal growth rate

83. Some of the factors that a *valuer* may consider while determining the terminal growth rate:

    (a) whether the level of operations beyond explicit forecast period are expected to be significantly different from the level projected in the last year of the explicit forecast period or only a normal growth is expected;

    (b) capacity utilisation at the end of explicit forecast period;

    (c) functional currency in which the projections have been prepared;

    (d) market share;

(e) product life cycle;

(f) geographic location of the asset;

(g) type of cash flows;

(h) residual life of the asset at the end of the explicit forecast period;

(i) capital investment required to support the assumed growth rate;

(j) whether there is future growth potential for the asset beyond the explicit forecast period, or whether the asset is deteriorating in nature; and

(k) for cyclical assets, the terminal value should consider the cyclical nature of the asset.

Relief from Royalty (RFR) Method

84. ***RFR Method*** **is a method in which the value of the asset is estimated based on the present value of royalty payments saved by owning the asset instead of taking it on lease. It is generally adopted for valuing intangible assets that are subject to licensing, such as trademarks, patents, brands, etc.**

85. The fundamental assumption underlying this method is that if the intangible asset to be valued had to be licensed from a third-party owner there shall be a royalty charge for use of such asset. By owning the said intangible asset, royalty outgo is avoided. The value under this method is equal to the present value of the licence fees / royalty avoided by owning the asset over its remaining useful life.

86. The following are the major steps in deriving a value using the RFR method:

(a) obtain the projected income statement associated with the intangible asset to be valued over the remaining useful life of the said asset from the client or the target;

(b) analyse the projected income statement and its underlying assumptions to assess the reasonableness;

(c) select the appropriate royalty rate based on market-based royalty rates for similar intangible assets or using the profit split method;

(d) deduct costs associated with maintaining licencing arrangements for the intangible asset from the resultant royalty savings;

(e) apply the selected royalty rate to the future income attributable to the said asset;

(f) use the appropriate marginal tax rate or such other appropriate tax rate to arrive at an after-tax royalty savings;

(g) discount the after-tax royalty savings to arrive at the present value using an appropriate discount rate; and

(h) Tax amortisation benefit, if appropriate, should be added to the overall value of the asset.

Multi-Period Excess Earnings Method (MEEM)

87. ***MEEM* is generally used for valuing intangible asset that is leading or the most significant intangible asset out of group of intangible assets being valued.**

88. The fundamental concept underlying this method is to segregate the earnings attributable to the intangible asset being valued. Intangible assets which have a finite life can only be used to value using MEEM. The value under this method is equal to the present value of the incremental after-tax cash flows ('excess earnings') attributable to the intangible asset to be valued over its remaining useful life.

89. The following are the major steps in deriving a value using the MEEM

(a) obtain the projections for the entity or the combined asset group over the remaining useful life of the said intangible asset to be valued from the client or the target to determine the future after-tax cash flows expected to be generated;

(b) analyse the projections and its underlying assumptions to assess the reasonableness of the cash flows;

(c) Contributory Asset Charges (CAC) or economic rents to be reduced from the total net after-tax cash flows projected for the entity/combined asset group to obtain the incremental after-tax cash flows attributable to the intangible asset to be valued;

(d) the CAC represent the charges for the use of an asset or group of assets (e.g., working capital, fixed assets, assembled workforce, other intangibles) based on their respective fair values

and should be considered for all assets, excluding goodwill, that contribute to the realisation of cash flows for the intangible asset to be valued;

(e) discount the incremental after-tax cash flows attributable to the intangible asset to be valued to arrive at the present value using an appropriate discount rate; and

(f) Tax amortisation benefit, if appropriate.

With and Without Method (WWM)

90. **Under WWM, the value of the intangible asset to be valued is equal to the present value of the difference between the projected cash flows over the remaining useful life of the asset under the following two scenarios:**

(a) **business with all assets in place *including* the intangible asset to be valued; and**

(b) **business with all assets in place *except* the intangible asset to be valu**ed.

91. The following are the major steps in deriving a value using the WWM :

(a) obtain cash flow projections for the business over the remaining useful life of the said asset to be valued under the following two scenarios:

(i) business with all assets in place including the intangible asset to be valued; and

(ii) business with all assets in place except the intangible asset to be valued.

(b) analyse the projections and its underlying assumptions to assess the reasonableness of the cash flows;

(c) discount the difference between the projected cash flows under two scenarios to arrive at the present value using an appropriate discount rate; and

(d) Tax amortisation benefit, if appropriate.

Option Pricing Models

92. There are several methods to value options, of which the Black-Scholes-

Merton Model and Binomial Model are widely used. The important inputs required in these models are as under:

(a) current price of asset to be valued;

(b) exercise price;

(c) life of the option;

(d) expected volatility in the price of the asset;

(e) expected dividend yield; and

(f) risk free interest rate.

93. These models value options by creating replicating portfolios composed of asset to be valued and riskless lending or borrowing.

94. MEEM, Relief from Royalty method, With and Without method are used only for valuation of intangible assets and Option Pricing Models are used in case of valuation of options. Specific guidance on the aforesaid valuation methods is provided in other relevant ICAI Valuation Standards.

Cost Approach

95. **Cost approach is a valuation approach that reflects the amount that would be required currently to replace the service capacity of an asset (often referred to as current replacement cost).**

96. In certain situations, historical cost of the asset may be considered by the *valuer* where it has been prescribed by the applicable regulations/ law/guidelines or is appropriate considering the nature of the asset.

97. Examples of situations where a *valuer* applies the cost approach are:

(a) an asset can be quickly recreated with substantially the same utility as the asset to be valued;

(b) in case where liquidation value is to be determined; or

(c) income approach and/or market approach cannot be used.

98. In some instances, the *valuer* may consider using other valuation approaches in combination with cost approach, such as:

(a) the asset has not yet started generating income / cash flows (directly or indirectly);

(b) an asset of substantially the same utility as the asset to be valued can be created but there are regulatory or legal restrictions and involves significant time for recreation; or

(c) the asset was recently created.

99. The following are the two most commonly used valuation methods under the Cost approach:

(a) Replacement Cost Method (see paragraph 100-102); and

(b) Reproduction Cost Method (see paragraph 103-107).

Replacement Cost Method

100. ***Replacement Cost Method*, also known as '*Depreciated Replacement Cost Method*' involves valuing an asset based on the cost that a market participant shall have to incur to recreate an asset with substantially the same utility (comparable utility) as that of the asset to be valued, adjusted for obsolescence**.

101. The physical properties of the new asset may or may not be similar to the one under valuation, but the former asset should bear comparable utility. Obsolescence includes physical deterioration, functional (technological) and economic obsolescence. The term obsolescence connotes a wider meaning than the term depreciation adopted for financial reporting or tax purposes.

102. The following are the major steps in deriving a value using the Replacement Cost method:

(a) estimate the costs that will be incurred by a market participant for creating an asset with comparable utility as that of the asset to be valued;

(b) assess whether there is any loss on account of physical, functional or economic obsolescence in the asset to be valued; and

(c) adjust the obsolescence value, if any as determined under (b) above from the total costs estimated under (a) above, to arrive at the value of the asset to be valued.

Reproduction Cost Method

103. ***Reproduction Cost Method* involves valuing an asset based on the cost that a market participant shall have to incur to recreate a replica of the asset to be valued, adjusted for obsolescence.**

104. The following are the major steps in deriving a value using the Reproduction Cost method:

(a) estimate the costs that will be incurred by a market participant for creating a replica of the asset to be valued;

(b) assess whether there is any loss of value on account of physical, functional or economic obsolescence in the asset to be valued; and

(c) adjust the obsolescence value, if any as determined under (b) above from the total costs estimated under (a) above, to arrive at the value of the asset to be valued.

Obsolescence

105. **Under the *Replacement Cost Method* or the *Reproduction Cost Method*, the estimated cost of creating an asset is required to be adjusted for depreciation on account of obsolescence in the asset to be valued.**

106. The following are common types of obsolescence

(a) *Physical obsolescence* represents the loss in value on account of decreased usefulness of the asset as the useful life expires.

(b) *Functional (technological) obsolescence* represents the loss in value on account of new technological developments; whereby the asset to be valued becomes inefficient due to availability of more efficient replacement assets.

(c) *Economic (external) obsolescence* represents the loss in value on account of decreased usefulness of the asset caused by external economic factors such as change in environmental or other regulations, excess supply, high interest rates, etc.

107. Cost approach is generally used in case of valuation of property, plant and equipment and certain intangible assets. ICAI Valuation Standards dealing with valuation of these assets provides specific guidance on the aforesaid valuation methods under the Cost approach.

Effective Date

108. ICAI Valuation Standard 103 *Valuation Approaches and Methods,* shall be applied for the valuation reports issued on or after 1st July, 2018.