



# Valuation of Plant and machinery

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# Syllabus

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- ▶ - Role, functions and responsibilities of a plant and machinery valuer
- ▶ - Cost, price, value and valuation
- ▶ - Types of market
- ▶ - Annuities; capitalisation and rate of capitalisation; years purchase; sinking fund; redemption of capital; reversionary value
- ▶ - Construction and use of valuation tables
- ▶ - Definitions of the various terms: plant, machinery, furniture, fixtures, fittings - judicial interpretation of these terms; market value, highest and best use value
- ▶ - Basis of valuation: value in use, value in exchange, value to the buyer, value to the seller, value to the occupier, value in existing use in-situ/ex-situ, value in alternative use in in-situ/ex-situ, liquidation value in-situ/ex-situ, orderly liquidation value, forced sale value
- ▶ - Characteristics and approaches to value investment property, marketable non-investment property and non-marketable non-investment property
- ▶ - Factors having direct bearing on value (valuation maxims) like physical, legal, social, economic, utility, marketability, transferability, scarcity; present worth of future benefits; intangible rights

# Importance of a Valuation

- ▶ Valuation is an opinion.
- ▶ It will change with end use / requirement.
- ▶ Valuation may not be equal to market price.
- ▶ Some valuation is on social desirability – jewellery.
- ▶ Valuation will be for a date and may not be valid after that – if condition change – BS 4 cars.
- ▶ Many economic decisions will be based on this opinion. Loans, Insurance, Value of the company, liquidation value.

*Valuation is NOT an END activity. It is part to reach an end.*

# Role of a Valuer

- ▶ Valuer to see the inherent value in the asset.
  - ▶ With respect to use.
  - ▶ With respect to sale.
  - ▶ With respect to loan.
  - ▶ With respect to insurance.
  - ▶ With respect to taxation.
- ▶ He makes independent opinion about the economic value of the asset.
  - ▶ Different ways to look at the asset.
  - ▶ From the view of the interested party.
- ▶ He verifies the asset – is present by physically looking at it.

# Functions of a Valuer

- ▶ To be knowledgeable for the machines and process.
- ▶ To physically verify the assets.
- ▶ Make inventory of the assets
  - ▶ Number
  - ▶ Condition
  - ▶ Residual / economic life.
- ▶ Get the maximum information related to the asset.
- ▶ Understand the financial with respect to the asset and the firm.

# Responsibilities of a Valuer

- ▶ Do the valuation without bias.
- ▶ Ethical & Professional conduct
- ▶ No conflict of interest
- ▶ Not to give false results.
- ▶ Satisfy the client – with the right logical valuation.
- ▶ Only do the valuation that you are entitled to. (ONLY P&M)
- ▶ Get help from experts – where ever required.
- ▶ Explain the logic of valuation method used
- ▶ Confidentiality
- ▶ Adherence of Valuation Standards

# Cost / Price / Value

Term	Meaning
Cost	Total expense done to acquire and put to use of an asset.
Price	Agreement between the buyer and seller to transact on a sale of an asset. Price is NOT related to Cost. Price is NOT related to value. This is related to the agreement.
Value	The monetary number that the asset is with relation to use, profits, requirements and other conditions.
Valuation	Process to determine a value. It is a judgement of the monetary number of an asset on a particular date and particular use. This will be different for the same asset in different condition.

# Cost

What goes in making the asset.

Direct Cost
Raw Material
Manpower
Energy
Consumables
Direct logistics

Indirect Cost
Security
Taxes
Licence fees
Management Over heads
Indirect logistics
Technology cost

Sales & Distribution
Promotion Cost
Dealer commission
Discounts
Advertisements

*Cost is – putting money in different forms in the asset.*



# Price

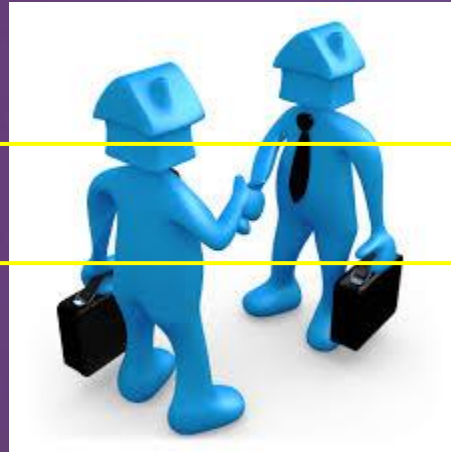
Price is the transaction value between a buyer and seller.

1-Mar-2020



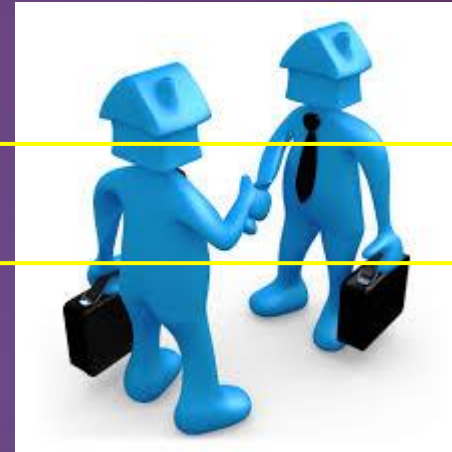
Flat = 1.5 cr

1-Jun-2020



Flat = 1.2 cr

1-Jan-2021



Flat = ???

Cost is same

Price changing with time.  
Price changing with economic condition.  
Price change with location

# Value

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- ▶ For who?
  - ▶ Builder – ?
  - ▶ Financier- ?
  - ▶ Buyer -?
- ▶ They are in different condition.
- ▶ They look at the same thing differently.

<b>Builder</b>
Stuck Inventory
Loans to bank
Future projects
Share holder value

<b>Financier</b>
Risk of the loan
What if buyer cancel
Liquidity of borrower
Can he resell the mortgage

<b>Buyer</b>
Job security
Good Bargain
Resale market at a future date

# Types of Market

- ▶ Perfect Market
- ▶ Monopolistic Competition
- ▶ Oligopoly
- ▶ Monopoly

# Perfect Market

- ▶ Goods are same
- ▶ Unlimited buyers and unlimited sellers.
- ▶ All are aware of the properties of the good.
- ▶ Free entry and exit from the market.
- ▶ Any quantity can be traded.

This is an idealist concept.

Stock markets are closest to this

# Monopolistic Competition

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- ▶ Large number of smaller firms,
- ▶ Sell similar products – but slightly different as well.
- ▶ Free entry and exit in the market.
- ▶ Can charge different price with some different actual or notional item

Mobiles is an example. All are nearly similar, but the sale price ranges a lot.

Cold Drinks – All are nearly the same, but prices and band are different.

# Oligopoly

- ▶ Few sellers, large buyers
- ▶ Sellers compete / collaborate to fix the price / market
- ▶ All firms try to maximise profits
- ▶ They can set prices.
- ▶ Barrier to entry and exit. Not easy to get in the business due to cost / technology / experience
- ▶ Powerful suppliers

Computer Chips – Intel & AMD

Operating Systems – Windows / iOS / Ubuntu / Linux

# Monopoly

- ▶ Only one supplier.
- ▶ Works at wishes to price, output and other terms.
- ▶ Formed by government directions
  - ▶ East India Company
  - ▶ Lada car in Russia.
- ▶ Entry and Exit barrier

Government usually do not allow Monopolies in todays conditions. If they are formed then the final cost is also controlled.

# Annuity

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- ▶ A cash in our out that is fixed over a period of time
- ▶ Payments made in equal instalments
  - ▶ Daily, weekly, monthly
- ▶ These payment can be
  - ▶ Towards loan repayment – example – Taxi loan
  - ▶ Towards saving – example – daily saving plan for small traders.
  - ▶ Investments – example daily SIP in mutual funds.

## Examples

EMI for loans  
Interest from FD  
LIC payment

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- ▶ Fixed Annuities
  - ▶ Start immediately.
  - ▶ Deferred annuity (1 month to 50 years).
    - ▶ Repayment started after that many period
    - ▶ Called Monitorium.
  - ▶ Multi year guaranteed annuity – at fixed returns or interest
    - ▶ Guaranteed return ULIP Plans.
  - ▶ Indexed Annuities – related to prices of gold, or interest rate or stock index.
- ▶ Variable Annuity
  - ▶ Returns or EMI vary with some external condition
  - ▶ Ballooning annuity
    - ▶ More money is repaid as the times goes.
      - ▶ Usual in home loans.
      - ▶ Assets in start up.
  - ▶ Portfolio Management Services

# Capitalization

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**TOTAL AMOUNT OF MONEY DEPLOYED IN A BUSINESS.**  
**AMOUNT OF MONEY THAT IS REQUIRED TO GIVE A STEADY RETURN.**  
**VALUE OF A COMPANY – COMPRISING OF ALL ASSETS**

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Asset is acquired at a cost now.  
The expense are booked over a period of time.  
The full cost of the asset is not charged in one shot  
    Acquisition cost goes in the balance sheet.  
    Depreciation is taken as the cost over a period of time.  
Retained Earning – distributed as bonus shares  
Leasing – is a way of capitalization.

# Theories of Capitalization

## ▶ The Cost theory

- ▶ Capitalization = total cost to establish & run the business.
  - ▶ Machines, working capital, debtors – sum of all is taken
- ▶ This is good for new companies.
- ▶ Tells the amount of funds required.

## ▶ Earning Theory

- ▶ Depends upon a fair rate of return on the capital employed.
- ▶ Example... Profits - Rs 2 lakh, Normal rate of returns – 10% then Capitalization is  $2 \text{ lakh} \times 100/10 = \text{Rs } 20 \text{ lakh}$ .
  - ▶ So the 10% returns on 20 Lakh capital.
- ▶ This is the normal way companies are valued as well.

# Cost Theory of Capitalization

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- ▶ Cost of land = Rs 1 cr
- ▶ Cost of Building = Rs 1.2 cr
- ▶ Cost of Machines = Rs 3 cr
- ▶ Working capital = Rs 0.75 cr

TOTAL COST = Rs 5.95 cr.

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This is the money required to start a company for manufacturing some product.  
At this time nothing has happened.  
So this is the capitalization of the company.

# Income Theory of Capitalisation

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Income from the earlier firm = Rs 1 crs per year pre tax, after interest.

How much money will be required to get the same income – taking bank FD rate.

Bank FD = 8.25%

So money required =  $I \times 100 / (R \times T) = 1 \times 100 / (8.25 \times 1) = \text{Rs } 12.12 \text{ cr.}$

This is the capitalization of the company.

# Rate of Capitalization

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Cap. Rate = (Net Operating Income) / Value

Example ... NOI = 1 lakh, Value = 20 lakh.

Cap Rate =  $1/20 \times 100 = 5\%$

*This is similar to rate of return.*

This is important to see the value of the company and one of the methods to value assets and companies.

Higher rate of capitalisation = higher value.

This is compared with secure returns. Bank FD, RBI Bonds.

# Years Purchase

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TIME REQUIRED TO PAY BACK THE INVESTMENT THROUGH PROFITS

## Example

Borrowed Rs 10 lakh. Refund Rs 15K per month or Rs 1.8 lakh per year

Time required to pay back =  $10/1.8 = 5.55$

So, Year Purchase = 5.55

*Also called Pay Back in .... Months.*

Capitalised Value = Net Income X Y.R.

Y.R. =  $100/\text{Rate of interest}$ .

# Sinking Fund

- ▶ We buy an asset.
- ▶ We use the asset to run business.
- ▶ With time asset will deteriorate.
- ▶ To run the business we will have to buy the asset / better asset again.
- ▶ Save from now for that future requirement.

## SINKING FUND.

- ❖ Some fixed value per month
- ❖ Some fixed percentage of sale per month.



# Redemption of Capital

*Redemption is the repurchase of a security at a price.*

- ▶ Redemption
  - ▶ Fix deposit – same value + interest
  - ▶ Mutual Funds – as per the scheme
  - ▶ Bonds – as per market rate or committed rate at the end of tenure.

*Redemption = Getting the investment back after a time at pre decided or market rates.*

# Revisionary Value

*THE VALUE OF AN ASSET, AFTER SOME TIME, AND WHEN IT IS REVISED.*

- ▶ The value after a certain period. The period is where a return is derived from the asset.
- ▶ Some asset class may have a higher and some lower than the purchase price
  - ▶ Land, Gold – may be higher
  - ▶ Machines – may be lower

In simple words – the price the asset will realize after a time and an income has been taken from the same.

# Valuation Tables

- ▶ These are to make quick calculations.
- ▶ Good in the past but with Excel sheets, they have lost their relevance.

Type of Table	Formula	
Amount returned after n years at compound rate	$A(1+r)^n$	A = amount invested, Interest = I Years = n
Reduced Value on inflation	$1 / (A(1+r)^n)$	same as above
Deposit per month and get a value after n years	$A \times ((1+r)^n) / r$	A = per month/ year deposits

Most of these are more available as a standard functions in Excel. These are no more in use.

# Definitions

Term	Meaning
Plant	A group of assets that are used for some conversion of material, non permanent and made of smaller constituents
Machinery	Individual machines that are used to do a value add on a material / semi finished product
Equipment	Other assets that helps to run a machinery
Fixture	Some devices that help to run the machine is a better way.
Furniture	To keep material, seating, and tables etc to help preform some work,
Fittings	Semi permanent objects to support the process of manufacturing or working



PLANT



MACHINERY



Equipment



FIXTURE



FITTINGS

# Judicial Interpretations

Term	Meaning	
Market Value	Willing buyer is ready to pay to a willing seller. Buyer and sellers are working at arms length. Both have full knowledge of the asset and are acting in self interest.	
Highest & Best Use	The use or value of plant and machinery, that may give the best returns over a period of time. This is assuming, <ol style="list-style-type: none"><li>1. Legal working</li><li>2. Possible to produce</li><li>3. Finance availability</li><li>4. Make profits</li></ol>	

# Basis Of Valuation

- ▶ What do you think, the asset should be valued as.
- ▶ What is the logic of valuation.
  
- ▶ Value – is different for different person.
- ▶ Value is different at different times.
- ▶ It depends upon – what the person sees, Market condition , Need of money , non financial needs etc.
- ▶ The valuation is – an opinion – that tries to bring a sum total of these to a number.

# Value in Use

- ▶ Plant is running – profit or loss / efficient or inefficient..
- ▶ The assets are in use.
- ▶ How much is the value of the full set of assets in this condition.
- ▶ The assets may be
  - ▶ Use to continue use the same products
  - ▶ May be used to make alternative products
  - ▶ May be used to make an input to the final product.
- ▶ One can use – discounted Cash flow method, Capitalization rate to get a value.



# Example – Sugar Plant

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- ▶ Running sugar plant
- ▶ May not be viable for several reasons.
- ▶ The valuation is as is – in running condition.
- ▶ The end use may be different.
  - ▶ Loan,
  - ▶ Insurance
  - ▶ Selling it

If the plant is closed, then the valuation and the process will be different.  
Value will be lower for a full comparative plant.

# Value in Exchange

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- ▶ Assets are exchanged for some other benefits rather cash.
- ▶ Plant is purchased – in exchange of agricultural land
  - ▶ Or a purchase agreement for certain years
  - ▶ Or a distributor agreement for certain years.
  - ▶ A plant in India for exchange for a plant in South America

Value in exchange – is when each parties are looking for non financial values like – market share, entry to market, brand enhancement,.

Different value equations are in the play and valuer may not be aware of those.

Value in exchange is common in trans national corporation, as it gives tax advantages.

# Value to the buyer

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- ▶ The buyer will generate extra income with this purchase
- ▶ Or he has a market and he will be able to start producing quickly in this plant.
- ▶ Key issues...
  - ▶ Faster to market
  - ▶ Faster / better growth
- ▶ Here also the key decision will NOT be ONLY on the financial value.

# M/S Lead.

- ▶ 50 year old company
- ▶ Reprocessing lead in North
- ▶ No market in South
- ▶ Want to enter South India market.
- ▶ Get an offer for a new plant ( 2 year old).

## Value to Buyer

Immediate production

Immediate sale

No start up time

No government delays

## Value to Seller

Making Losses

Management band width is low

Cut losses and get out

# Value to the seller

- ▶ This is a deprival value – how much the business will be lost because this asset cannot be used.
  - ▶ Cannot be used due to obsolescence
  - ▶ Market Changes
  - ▶ Damaged
- ▶ Deprival Value = lower of replacement cost or recoverable amount
- ▶ Recoverable amount = higher of net selling price and value in use.

# Value to the Occupier

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- ▶ Here – we are assuming, Occupier – is a party that has rented the plant for it's use.
- ▶ The value will be derived as to replicate the plant v/s rental here of.
- ▶ Replication = Balance sheet is affected.
- ▶ Rental = revenue is affected.
- ▶ Plus long term business potential.

# Value in Existing Use In-Situ / Ex-Situ

- ▶ Same plant, same location, same product – the value
- ▶ Same plant. Different location, same product – the value of

For every thing as same, the capitalization rate will come in play.

What is a fair value of return.

For a different location – the cost of transferring the asset will be reduced. Plus cost of land will also be changed.

Another important point here is – who own's the BRAND. Even when the product is same, different brands get a different price in the market

# value in alternative use in in-situ/ex-situ

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- ▶ Same plant – different use. Location is same or different.

Example :: Fabrication Shop. Making Mobile towers.

The same equipment can be used to make steel structure for bridges or cranes.

The value will be again seen as per the business value.

Seller – cannot see the same, as he has no plan to enter or cannot enter the alternate business.

Buyer – knows this and wants to get a ready facility – so he can start immediately.



# liquidation value in-situ/ex-situ

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- ▶ The business is closed.
- ▶ Present promoters are not in a position to run the business.
- ▶ Liquidator is selling it.
- ▶ When the sale is taking place as near or scrap value – all assets are in the location.
- ▶ Or when the assets are sold, but there is division of land & building and plant & machinery.

As this is a liquidation, the scrap value plus some alpha will be realized.

# orderly liquidation value

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- ▶ When the sale is done through a process.
- ▶ Tender / Auction
- ▶ Several parties are shown of the property
- ▶ And the matter is negotiated.
- ▶ This is time consuming
- ▶ But gets a better value.
- ▶ Assets can be sold one at a time or all in one go.

# forced sale value

- ▶ A desperate sale is made
- ▶ Fixed date
- ▶ Fixed terms
- ▶ And it goes out.
- ▶ Usually an auction
- ▶ Prices gets reduced a lot.
- ▶ But the matter gets closed – quite fast.

# Investment Property

- ▶ Those properties, moveable or fixed, that gives a fair value of return.
- ▶ It may also give some capital appreciation.
- ▶ It can be sold at a later date without any issues.
- ▶ Example
  - ▶ Residential Flat
  - ▶ Commercial space
  - ▶ Shop

These properties will get the full value – as they are freely tradable.

# marketable non-investment property

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- ▶ If we are living in our owned house....
  - ▶ It is marketable – it can be sold.
  - ▶ But it NON Investment – as I do not want to sell at any value.
- ▶ Some examples
  - ▶ Property by wafq board
  - ▶ Joint property of a community / association.
- ▶ These can be sold as there will be buyers in the market. But as the underlying use is different, it will not be sold.

# non-marketable non-investment property

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- ▶ Cannot be sold
- ▶ Examples
  - ▶ Religious places
  - ▶ Historic places
  - ▶ President's house

# Valuation Maxims

*MAXIMS :: LIKE A THUMB RULE*

*What has a bearing on the value.*

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- ▶ Physical
  - ▶ How is the condition
  - ▶ What model
  - ▶ Asset make
  - ▶ Capacity
  - ▶ Appearance
  - ▶ Environment working
- ▶ Legal
  - ▶ the ownership
  - ▶ Lease or hire purchase
  - ▶ Any zonal restriction (SEZ)
  - ▶ Taxation on the asset
  - ▶ Government policy towards the asset. ( Environment, Useage)

- ▶ Social
  - ▶ Peoples tastes are they relevant with the asset?
  - ▶ Are customer interested in products made by the asset?
  - ▶ Does the asset has any negative sentiments? (Some tragedy)
- ▶ Economic
  - ▶ Is it useful
  - ▶ Does it work profitably
  - ▶ Is there any change in any policies.
- ▶ Utility
  - ▶ power to render a service.
  - ▶ Can it support other services?
  - ▶ Can it be part of a value chain?
- ▶ Marketability
  - ▶ Can be sold freely
  - ▶ Does it have a market for a few more years?



- ▶ Transability
  - ▶ Can the title be transferred.
  - ▶ Is the lease – with the sale clause or not.
  - ▶ Is there is a restricted sale clause?
- ▶ Scarcity
  - ▶ Shortage in raw material
  - ▶ Shortage in consumables
  - ▶ Shortage of cash
- ▶ Present worth of future benefits
  - ▶ Are we going to make profits for a longer time?
  - ▶ How is the trend of profits?
- ▶ Intangible rights
  - ▶ Brand
  - ▶ Intellectual Property
  - ▶ Design & patents

