Valuation approaches - Income	Valuation method # 1 : Direct capitalisation method		
annroach	NOL.	Pontal income if fully occupied	
	$Value = V_0 = \frac{100T_1}{Can rate}$	+Other income	
	Capitalisation rate = Cap rate = Discount rate $-$ Growth rate	= Potential gross income	
		-Vacancy and collection loss	
	Rent ₁ Rent ₁	= Effective gross income	
	All risk yield (ARY) = $\frac{1}{Comparable sale price} = \frac{1}{Value}$	-OPEX (ecluding interest and tax)	
	(*) Tentants are required to pay all expenses \rightarrow APV - cap rate = Net operating income (NOI)		
	Financial and required to pay an expenses 7 ANT - capitate * Dants are expended to increase @ constant rate parts are AIRP - Capitate + Growth rate		
	 Stabilised NO1: when NOI is not representative of NOI of similar properties due to temporary issue (e.g.: renovation) → NOI should be calculated as no impact of temporary issue <u>Gross income multiplier</u>: similar to cap rate, but ignore the impact of vacancy rates and OPEX Value = Gross income × Gross income multiplier Valuation method #2 : DCF Discount rate = Cap rate - Growth rate Terminal cap rate : estimated residual value of property using direct capitalisation method OPEX assumptions : fixed expenses can change due to inflation ; variable expenses vary with occupancy Valuation with different Lease structure : Reversionary potential : adjust rent to current market rent @ lease expiration + discount rate applied to contract rent : lower than reversion rate, because contract rent is less risky Layer method : + Layer 1- Contract rent : assume to continue in perpetuity → cap rate = ARY (contract rent is less risky) + Layer 1- Contract rent : bipber can rate than contract rent 		
	· Layer 2 - incrementar rent : nigher cap rate than contract rent		
Valuation approaches - Cost	Step 1: Estimate MV of land (sales comparison approach)		
approach	Step 2: Estimate building's replacement cost (based on current construction cost and standards + builder/developer's profit)		
	Step 3: Deduct physical deterioration (curable and non-curable) functional obsolescence, location obsolescence and economic obsolescence - <u>Physical deterioration</u> : wear and tear of the building overtime + Curable: if benefit of fixing ≥ cost to cure		
	+ Incurable : Effective age		
	$Depreciation = (Building's replacement cost - Cost of fixing curable items) \times \frac{Dot (Building's replacement cost - Cost of fixing curable items)}{Total economic life}$		
	- Functional obsolescence : loss in value from defects in design and impairs buildi	ng's facilities (estimated by capitalising the decline in NOI)	
	- <u>Locational obsolescence</u> : occur when location no longer optimal. Part of the loss might already be reflected in MV of land - <u>Economic obsolescence</u> : occur when new construction is not feasible under current economic conditions		
	(*) Cost approach is considered the upper limit of value since an investor would never pay more time the start and a comparable building		
		1050	
Valuation approaches - Sale	Value of subjected property = sales prices of comparable properties ± rijus ne us 11 fil er es Differences may relate to : size, age, location, property condition, markin, will on		
comparison approach			
	- Upward adjustments for undesirable difference with second to poert a construction of the second seco		
	- Downward adjustments for desirable of ference with so year property		
Highest and best use	Highest and best use: the et ht oduces highest implied land value		
	Implied land view = will comproperty once contruction is series cost constructing the improvement (including profit to the developer)		
	rev dauy		
Due diligence in private equity re	jiligence in private equity re view iligence : to confirm the fact + condition that 😌 realizes the value of the transaction -> lower the risk of unexpected legal and physical problems		
estate investment	ent 🔰 - Lease review and rental history		
	- Confirm OPEX by examining bills		
	- Review CF statements		
	- Obtain environment report $ ightarrow$ identify possible contamination		
	- Physical / Engineer inspection $ ightarrow$ identify structural issues + Check condition of	he building system	
	 Inspect the title and other legal documents for deficiencies 		
	- Survey the property $ ightarrow$ confirm the boundaries + identify easements		
	- Verify compliance with zoning laws, building codes and environment regulation	5	
	- Verify payment of taxes, insurance, special assessments and other expenditures		
Appraisal-based indices	Appraisal-based indices: combine valuations of individual properties that can be us	ed to measure market movements \rightarrow could compare performance with other asset classes	
	MCREIF Property index (NPI) : popular index in US. NCREIF calculate return as follow	vs:	
	NOI - CAPEY + (End market value - Beg market value)	NOI End $MV = Reg MV = CAPEY$	
	Return =	$\frac{1}{1}$ $\frac{1}$	
	If increase in MV > CAPEX \rightarrow Positive to pital return uuv	beg.mv beg.mv	
	Cons of appraisal-based indices :		
	 Actual transactions occur before appraisals → appraisal-based indices tend to la 	g actual transaction \rightarrow smooth the index	
	- Appraisal lag \rightarrow lowe correlation with other asset classes		
Tennesting base (1. 1			
Iransaction-based Indices	I ransaction-based indices : constructed using repeat-sales index and hedonic inde	te allacate change in value apph quarter	
	Repeat-sale mode: rely on repeat sale of same property \rightarrow regression is developed to allocate change in value each quarter		
	reduction index : require only 1 sale regression is developed based on changes in	property characteristics (age, location, etc.)	
	1		

Commodity swap	Swaps :		
	- payments between 2 parties are based on various risk factors : excess returns, total returns of measure of price volatility on the commodity		
	- Used to increase / decrease exposure to comodities risk		
	1. Total return swap :		
	- Swap buyer receive periodic payments based on change in price of a commodity, in return for a series of fixed payments		
	- Often used by institutions to gain exposure to price risk of underlying commodity, avoiding either holding the commodity or managing the long position in futures contracts over time		
	2. Excess return swap :		
	- A party makes a single payment @ initiation, and receive periodic payments of (% of commodity price exceeding benchmark value × notional value)		
	- In months that commodity price < benchmark value $ ightarrow$ no payments are made		
	3. Basis swap :		
	- variable payments based on difference between prices of 2 commodities		
	- Swap seller : has liquid traded futures available for hedging		
	- Swap buyer : no liquid futures contracts avalable		
	- Price of 2 commodities are less than perfect correlated $ ightarrow$ Combine liquid future + basis swap $ ightarrow$ hedge price risk from the input that swap buyer does not have liquid futures market		
	4. Commodity volatility swap : - Underlying factor : volatility of commodity price		
	- Volatility of commodity price < expected level specified in the swap $ ightarrow$ swap seller receives payment		
Commodity index	- Commodity index should be investable : able to replicate with available liquid futures contracts		
	- Differences between commodity indexes		
	+ Which commodities are included		
	+ Weighting of each included commodity		
	+ Method for rolling contracts		
	+ Method of rebalancing portfolio weights		
	- Short period : difference in metodology $ ightarrow$ return differences		
	- Long period : difference between mix and weights of commodities $ ightarrow$ return differences		
	- Indexes may be equal weighted, or weighted on some factors (e.g.: value of global production of individual commodity / commodity sector)		
	- Roll method : Passive (roll into near-month contract each month), or Active (select contract woth greatest backwardation / smallest contango)		
	- Frequency of rebalancing affects commodity index returns.		
	+ Prices are trending : rebalancing portfoio weights → decreasse return		
	+ Prices are choppy and mean-reverting : rebalancing portfolio weights $ ightarrow$ increase return		

weights → increase return Notesale, co Notesale, co Notesale, co Preview from 12 of 12 Page 12 of 12