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Stabilised NOL I. when NOL is not representative of NOL of similar properties due to temporary issue [e.g., removation) > NOL should be calculated as no impact of temporary issue (construction and policy). The construction is not believe to the construction and the construction of the		(*) Rents are expected to increase @ constant rate each year → IRR = Cap rate	+ Growth rate		
Value - Gross income s Gross income multiplier  Valuation and the Committed of 2 (2007)  - Decount state - Edge year-Gorden's and selected of property using direct capabilitation method  - (PMX account loss a structure)  - Reventment properties - Individual control of the Committed of the Commi		Stabilised NOI: when NOI is not representative of NOI of similar properties due	e to temporary issue (e.g.: renovation) → NOI should be calculated as no impact of temporary issue		
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- Obscount rate = Cup rate - Crowdit rate = Terminal coprate - Crowdit rate - C					
- Terminal cap rate estimated recitable value of property using eriest capitalism method  - OPEX assumptions: Tisked expense can chance due to stribution, variable expense vary with occupinny  valuation with different Less shuttures:  - Reviewing potential risky care to current mushed rent @ lease expiration  - Layer method:  - Layer method:  - Layer actions:  - Layer a		Valuation method #2 : DCF			
OPEX assumptions (Index expenses can change due to infation, variable expenses vary with occupancy Valuations with different lease instruction."  Reversionary potential: adjust rent to current market met \$\text{if lease expension}\$  - ediction triake adjusted to control the reversion rate, because contract rent is less risky  - Layer 1. Contract rent, assume to control the preparetility 4 - day rate = ARY (contract rent is less risky)  + Layer 2. Contract rent, assume to control the preparetility 4 - day rate = ARY (contract rent is less risky)  + Layer 3. Contract rent (alses companion approach)  Valuation approaches - Cost  Sep 2. Etimetes Word free (fulses companion approach)  10		- Discount rate = Cap rate - Growth rate			
Valuation with different lease structure;		- Terminal cap rate : estimated residual value of property using direct capital	isation method		
- Revertionary potential adjust rent to carrent market end. Bease expiration  - discount rate applied to contract ent. In which mere person in all, because contract ent is less risky  - Layer method:  - Layer method:  - Layer method:  - Sep 1: Estimate and or adjustment of continue in perpetuity -) cap rate = ARY (contract rent is less risky)  + Layer 2: Incremental rent. Pulpher cap rate than contract rent  - Sep 1: Estimate AW of land (cales companion approach)  - Stop 2: Estimate AW of land (cales companion approach)  - Stop 2: Estimate AW of land (cales companion approach)  - Stop 2: Estimate AW of land (cales companion approach)  - Stop 2: Estimate AW of land (cales companion approach)  - Stop 2: Estimate AW of land (cales companion approach)  - Physical destorations, where an extre of the building overine  - Physical destorations, where an extre of the building overine  - Pulphane discontraction (causalism of septacement cost — Cost of fixing carrable titems) × Bifection approach  - Pulphane disobolescence; locis in value from defects in easign and impairs building's facilities learned by applicating the decide in NOI  - Locational disobolescence; locis in value from defects in easign and impairs building's facilities learned by applicating the decide in NOI  - Locational disobolescence; locis in value from defects in easign and impairs building's facilities learned by applicating the decide in NOI  - Locational disobolescence; locis when location no longer optimal. Part of the loss might already be reflected in NV of land  - Economic Subsidered and control of the longer politics in Subsidered (carried applications)  - Ville of subjected property - sales prices of companies an investor would never pay more than the part of the subsidered politics and property and payments of the sales of the subsidered politics and payments of the sales of the subsidered politics and payments of the sales of the subsidered politics and payments of the subsidered politics and payments of the sales of the subsidered politic		- OPEX assumptions : fixed expenses can change due to inflation ; variable ex	openses vary with occupancy		
+ discount rate applied to contract rent is less risky - Layer remedic : - Layer rem		Valuation with different Lease structure :			
Layer 1-Contract rent : assume to continue in perpetuity > cap rate + ARY (contract rent is less risky)   Layer 2 - Incremental rent : higher cap rate than contract rent   Step 1: Estimate NV of lead (sales comparison approach)   Step 3: Estimate NV of lead (sales comparison approach)   Step 3: Deduct physical deterioration (curable and non-curable) functional obsolescence, location obsolescence and economic obsolescence   Physical deterioration (curable and non-curable) functional obsolescence, location obsolescence and economic obsolescence   Physical deterioration (curable and non-curable) functional obsolescence, location obsolescence and economic obsolescence   Physical deterioration (curable and non-curable) functional obsolescence, location obsolescence and economic obsolescence   Physical deterioration (sublishing s cost to cure   Increased obsolescence   Location obsoles		- Reversionary potential : adjust rent to current market rent @ lease expirati	on		
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Due diligence in private equity real estate investment  - Le Le review and rental history - Confirm OPEX by examining bills - Review CF statements  - Obtain environment report → identify possible contamination - Physical / Engineer inspection → identify possible contamination - Physical / Engineer inspection → identify possible contamination - Physical / Engineer inspection → identify structural issues + Check condition of the building system - Inspect the title and other legal documents for deficiencies - Survey the property → confirm the boundaries + identify easements - Verify compliance with zoning laws, building codes and environment regulations - Verify payment of taxes, insurance, special assessments and other expenditures  - Appraisal-based indices: combine valuations of individual properties that can be used to measure market movements → could compare performance with other asset classes - MCREIF Property index (NPI): popular index in US. NCREIF calculate return as follows:  - Return = NOI - CAPEX + (End market value - Beg. market value) - If increase in MV > CAPEX → Positive eghtlar legith value - Appraisal-based indices: - Actual transactions occur before appraisals → appraisal-based indices tend to lag actual transaction → smooth the index - Appraisal lag → lowe correlation with other asset classes  - Transaction-based indices: constructed using repeat-sales index and hedonic index - Repeat-sale index: rely on repeat sale of same property → regression is developed to allocate change in value each quarter	Highest and best use				
Lease review and rental history   Confirm OPEX by examining bills		Implied land value = Value of rought once contruction is completed. Cost of	Constructing the improvement (including profit to the developer)		
Lease review and rental history   Confirm OPEX by examining bills		ALOVIV SONO			
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Life cycle of commodities	Life cycle of crude oil	
	1. Drill well $\rightarrow$ 2. Extract crude $\rightarrow$ 3. transport + strorage for few months $\rightarrow$ 4. refine into various fuels (gasoline, heating oil, diesel oil, jet fuel)	
	→ 5. transport to customers	
	Life cycle of natural gas	
	1. Extract → 2. transportation to consumer thru pipeline / or cooled to liquid form and transported by ship	
	Life cycle of industrial metals	
	1. Extract ore $\rightarrow$ 2. Smelted into the quality of metal required by end users	
	(*) Economies of scale due to large, efficient mining and smelting operations → most efficient running near capacity → producers hesistant to decrease production when price fall	
	Life cycle of lifestock	
	1. Raise → 2. Slaughter (chichken: after weeks; hogs: 6 months; cattle: few years) → 3. Freezing for storage and international trade	
	Life cycle of grain	
	1. Plant → 2. Harvest (5+ months after planting) → 3. Storage	
	(*) Deliverable futures contracts are available on dates to coincide with the harvest	
	Life cycle of softs - vary by products	
	E.g. : Coffee	
	1. Plant → 2. Harvest (up to 4 years after plant for the 1st harvest) → 3. Transport + store in warehouse → 4. Roasted by local roaster → 5. deliver to end-users / retail sales outlets	
	(*) Lag between investment in new capacity and increase in supply	
	(*) Hedge price risk: producers sell futures for delivery to warehouse; consumers by futures and take delivery from warehouse	
Compare valuation of	1. Commodities are physical assets, have no CF, and may incur storage and transportation costs	
commodities vs. valuation of	2. Spot price of commodity can be viewed as discounted value of expected future selling price	
equities / bonds	3. Storage cost can lead to the higher forward prices the further the settlement date in the future	
Participants in commodity futures	1. Hedgers :	
markets	- Informed investors, either produce or use the commodity	
	- Reduce risk by long / short futures contracts	
	2. Speculators :	
	- Take on commodity risk in futures markets	
	- May act as informed investors	
	- Exploit information / information processing advaantage to profit from trading with hedgers	
	- Earn profit by providing liquidity to markets : long futures when commodity producers are selling ; short futures when commodity consumers rewuying	
	3. Arbitrageurs :	
	<ul> <li>3. Arbitrageurs:         <ul> <li>Buying, selling, storing the physical commodities when the differnce between spot and futures price is too large / too small, d'en the a turn cost of storing the commodity</li> <li>Futures price &gt; Spot price + Storage cost → buy and store commodity + short futures</li> <li>Futures price &lt; Spot price + Storage cost → Selling commodity + long futures</li> </ul> </li> <li>4. Commodity exchange</li> <li>5. Commodity market analysts: non-market participants, use information to analyse if the long futures</li> <li>6. Commodity regulators: regulate the commodity market</li> </ul>	
	- Futures price > Spot price + Storage cost → buy and store commodity + short futures	
	- Futures price < Spot price + Storage cost → Selling commodity + long futures	
	4. Commodity exchange	
	5. Commodity market analysts: non-market participants, use information to analyse in Visco entitles	
	6. Commodity regulators : regulate the commodity market	
	No	
Basis / Calendar spread /	Basis = spot price - futures price	
Contango / Backwardation	Calendar spread = Negre 10 re 20 - Further futures price	
J.,	Contango to the rice at Ligher @ dates further in the court (Pasis & Calendar spread < 0)	
	Be ke are non: havere price are lower @ rate   ferit   r   the force (Basis & Calendar spread > 0)	
	Statute of the state of the sta	
Theories of commodity futures	1. Insurance theory: Commodity producers want to reduce price risk → drives down futures price	
returns	- Disadvantages : lack based on 2 empirical findings	
- Insurance theory	+ No buyers' extra returns for providing insurance in backwardation markets	
- Hedging pressure Hypothesis	+ Cannot explain the buyers' negative return for providing insurance in contango markets	
- Theory of Storage	*- Cannot explain the buyers negative return or provious insurance in containgo markets     *- Hedging Pressure theory :  Hedging Pressure theory :	
,	- Commodity producery want to reduce price risk → drives down futures price; and	
	- Commodity consumers want to reduce price risk $\rightarrow$ drives up futures price  - Commodity consumers want to reduce price risk $\rightarrow$ drives up futures price	
	→ Producers' hedging behaviour > Consumers' hedging behaviour > Down pressure > Up pressure → Backwardation	
	Producers' hedging behaviour < Consumers' hedging behaviour > Down pressure > Down pressure > Contango     Producers' hedging behaviour < Consumers' hedging behaviour > Down pressure > Contango	
	Pisadvents reugning penavious Consumers neugning penavious 9 by pressure 2 bown pressure 9 contango     Pisadvantages:	
	- <u>Uisauvantages</u> .  + Producers typically face more concentrated price risk than consumers	
	+ Both producers and consumers may be speculators , not just hedgers	
	+ Both producers and consumers may be speculators, not just neagers  + Heding pressure is not observable → cannot directly test the hypothesis	
	3. Theory of storage: Backwardation / Contango futures markets depends on the relationship between storage costs of the commodity and benefits of holding physical commodity	
	(Convenience yield)	
	Convenience yield	
	⇒ Storage costs < Convenience yield → Backwardation	
	→ Storage costs > Convenience yield → Backwardation	
Total return for a fully collaterised		
commodity futures contract	- Fully collateralised futures : Value of posted cash / accepted securities = notional value of futures contract	
commonly ratares contract	Tany constitutes actually accepted actuary decepted accounted - notional value of intuites contract	
	Total return = Collateral return + Price return + Roll return	
	Collateral return (Collateral yield): holding period yield on the T-bills, if T-bills are deposited as collateral	
	Price return (Spot yield) = (Current return - Previous price) / Previous price  Pall return (Pall yield) - gains / Joseph Grant Previous price provided by the position of the future when commodity designing contract evaluations.	
	Roll return (Roll yield): gains / losses for rollover the position of the future when commodity deriative contract expires  Packwardstion market: longer dated futures are trading @ lower price > buy more contracts to hold the value of long position.	
	- Backwardation market: longer-dated futures are trading @ lower price -> buy more contracts to hold the value of long position	
	- Contango market : longer-dated futures are trading @ higher price → buy less contracts to hold the value of long position	
	Price of expiring futures contract — Price of new futures contract	
	Roll return = Price of expiring futures contract	
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