

Alternative Portfolio 2017 CFA二级知识框架图



讲师:李斯克 www.pzacademy.com

PRIVATE REAL ESTATE INVESTMENTS

Basic Concepts Of Private Real Estate Investment

Forms of Real Estate

两个维度,房地产投资总体框架。

本Reading介绍Private投资,下个Reading介绍Public投资。

	Debt	Equity
Private	Mortgages	 Direct investments such as sole ownership Partnerships Other forms of commingled funds
Public	 Mortgage-backed securities 	Shares of REITs and REOCs



Property Classifications



Private投资分类

分类1:

- Residential properties
- Non-residential properties
- Mixed-use development

分类2:

- Commercial Real Estate
- Non-commercial real estate
- · Unique categories

Basic Concepts

Real Estate Characteristics

- Heterogeneity
- · High unit value
- · Active management
- High transaction costs
- · Depreciation and desirability
- Cost and availability of debt
- · Lack of liquidity
- Difficulty in determining price
- 概念, REITs区别★

Reasons to Invest

- Current income
- Capital appreciation
- · Inflation hedge
- Diversification
- · Tax benefits
- 概念,简单了解即可

Risks to Invest in Real Estate

- Business conditions
- New property lead time
- Cost and availability of capital
- Unexpected inflation
- Demographic factors
- Lack of liquidity
- Environmental issues
- Availability of information
- Management expertise
- Leverage
- Other factors
- 概念,简单了解即可

Relative To Stocks And Bonds

- Bond-like: in the lease time.
- Equity-like: when a lease expires, uncertainty regarding renewal

Valuations

Different types of value 学会区分差别

Market value ★ → typical investor
Investment value ★ → particular investor
Value in use
Assessed value

→ Highest and best → the highest implied land value



Calculate NOI ★ 计算,CF概念

Mortgage lending value



NOI = Rental income if fully occupied + Other income – Vacancy and collection loss – Operating expense

NOI折现

Direct Capitalization Method→一阶段模型,同GGM

value =
$$V_0 = \frac{NOI_1}{\text{cap rate}}$$
 $\stackrel{\text{NOI}}{\longrightarrow}$

计算★,求cap rate 假设owner支付费用 Stabilized NOI★ 计算

All risks yield (ARY) 计算 📄

 $value = V_0 = \frac{rent_1}{ARY}$ 假设tenant支付费用

Implied Growth Rate

V=NOI/(r-g)

DCF method →二阶段模型,同GGM

$$MV_0 = NOI_1/(1+r)^1 + NOI_2/(1+r)^2 + ... + NOI_n/(1+r)^n + MV_n/(1+r)^n$$

▶ 第二阶段求终值,再折现

Direct Income Approach→ MV_n = NOI_{n+1}/(r-g) = NOI_{n+1}/R_n 区别,R_n与R₀大小关系比较

 $R_n \bigstar$ \rightarrow terminal cap rate/residual cap rate不同于Going-in cap rate

- R_n be higher → int increase, g lower, uncertainty of NOI
- •R_n be *lower* → int *lower*, g to be *higher*

求终值★ → 同Equity中求 TV方法

Gross income \rightarrow gross income multiplier = $\frac{\text{sales price}}{\text{gross income}}$

Limitations

- Ignores vacancy rates
- •Ignores operating expenses

折现★ → 计算 Term and Reversion Approach 用于合约期间估值,且当前market rent已经发生变化同Equity中两阶段模型,注意两个阶段折现率不同

direct capitalization and DCF methods区别



	Direct capitalization	DCF
Numerator	First year NOI	Future cash flow
Inputs required	Less complex	Need to forecast what will happened in future.Not doing a detailed lease-by-lease analysis.
Comparable transactions	• Yes	• No
Choosing discount rate	• No	• Yes

估值方法2: Cost Approach ★

Cost Approach ★ → upper limit for owner

差别 → Curable and incurable

计算,掌握原版书例题即可

估值方法3: Sales Comparison Approach★

计算,掌握原版书例题即可

	Cost Approaches		Sales Comparison		
Adv.	Upper limit to buyer	•	Active→ reliable		
Disadv.	Difficult to estimate	•	weak market → Unreliable Difficult to find comparables Investors' behaving rationally.		



概念,三种方法估值, 然后加权求和

Real Estate investment indices



Appraisal-based	Quarterly data Value-weighted Appraisal lag to "smooth" the index
Transaction-based	Lead appraisal-based indices Noisy

Debt investment in Real Estate ★ 求最大贷款额是多少

$$DSCR = \frac{First-year\ NOI}{debt\ service}$$
 最低要求

$$LTV = \frac{loan\ amount}{appraisal\ value}$$
 最高限制

equity dividend rate =
$$\frac{\text{first year cash flow}}{\text{equity}}$$

计算 Leveraged IRR

Unleveraged IRR

PUBLICLY TRADED REAL ESTATE SECURITIES

Concepts Of Publicly Traded Real Estate

Advantages and Disadvantages

Public投资Advantages

Superior liquidity
Lower minimum investment
Limited liability
Access premium properties
Active management
Protections accorded
diversification

REIT-specific advantages

Tax Exemption
Predictable earnings
High yield

REIT-specific Disadvantages

Lack of flexibility

Public投资Disadvantages

Taxes vs direct ownership
Lack of control REIT
Costs of corporate structure
Price close to stock market
conflicts of interest
Limited income growth
Forced equity issuance

Due Diligence

Remaining lease terms
Inflation protection
In-place rent vs market rent
Costs to re-lease space
Tenant concentration
Tenants' financial health
New competition
Balance sheet analysis
Quality of management

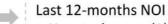
概念,记住第一及第二影响因素

Economic value Determinants of REITs

REIT Type	National GDP growth	Job Creation	Retail Sales Growth	Population Growth	New Supply/Demand
Shopping/Retail	1	3	2	4	4
Office	1	2	5	4	3
Healthcare	1	4	5	2	3
Industrial	1	5	2	3	4
Hotel	1	2	5	4	3
Storage	1	3	5	2	4

Valuation *

NAVPS→ most appropriate measure,计算,注意cash NOI ■



- Non-cash rents (1)
- + Full-year adjustment for acquisitions(2)
- = Pro forms cash NOI for last 12 months

Accounting net earnings

最常用方法

+ Depreciation expense

P/FFO ⇒

- + Deferred tax expenses (i.e., deferred tax expenses)
- Gains from sales of property and debt restructuring
- + Losses from sales of property and debt restructuring
- = Funds from operations

FFO (funds from operations)

比FFO更好方法,会计算AFFO

P/AFFO



- Non-cash (straight-line) rent adjustment
- Recurring maintenance-type capital expenditures and leasing commissions
- = AFFO (adjusted funds from operations)

DCF→同Equity DCF方法

PRIVATE EQUITY VALUATION

PE Funds Characters

Value creation in PE

Re-engineer the firm
Obtain debt financing
Better alignment of interests



Control Mechanisms

Compensation Tag-along, drag-along clauses Board representation Non-compete clauses Priority in claims Required approvals Earn-outs

Economic terms of a PE fund * *



Management fees

Transaction fees

Carried interest

Ratchet *

Hurdle rate

Target fund size

Vintage ★

Term of the fund

Key man clause

Performance disclosure

Confidentiality

Clawback

Distribution waterfall 🛨 🛨

Tag-along, drag-along clauses

No-fault divorce

Removal for cause

Investment restrictions

Co-investment ★★ 两层含义

Deal-by-deal method

Total return method

PE Fund 投资相关★ ★

概念为主

Diversification risk

Market risk

Cost of Investing in PE

Transaction cost
fund setup cost
Administrative cost
Audit cost
Management cost
performance cost
Dilution cost
Placement fees

Risk of Investing in PE

Liquidity risk
Unquoted investment risk
Competitive environment risk
Agency risk
Capital risk
Regulatory risk
Tax risk
Valuation risk

Type of exit routes

IPO 退出价值最高 Secondary Market Sale MBO Liquidation

Due diligence of PE fund investment

returns tend to persist return discrepancy is very large illiquid, long-term investments

VC vs. Buyout ★ ★

VC与Buyout区别

Characteristic	Venture Capital Investments	Buyout Investments
Cash Flows	Low predictability	Stable and predictable
Product Market	 New product market with uncertain future 	 Strong market position
Products	 based on new technology 	Established products
Asset Base	• Weak	 Substantial base that can serve as collateral
Management	New team, strong entrepreneurial record	Strong and experienced
Leverage	• Low debt , majority of equity financing	 High amounts of debt
Risk Assess	difficult to estimate	Risk can be estimated du
Exit	• Exit via IPO or firm sale	• Exit is predictable
Operations	• High cash burn rate	 Potential for reduction in inefficiencies
WC Required	 Increasing requirements 	 Low requirements
Due Diligence	• limited due to short history	extensive due diligence
Goal Setting	 Goals are milestones 	 Goals reference CF, strategic plan
Returns	High returns a few successful	• Low variability
Market Present	 Generally not active in capital markets 	Active in capital markets
Transactions	Negotiation	auction-type process
Ability to Grow	• less scalable	Strong performers
Source of GP	Carried interest	Carried interest, and monitoring fees

Valuation ★ ★ ★

GP对company估值

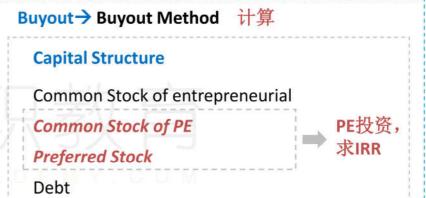
VC→VC Method 计算(一轮/多轮融资)

- For a single financing round
 - Step 1: Post-Money Valuation
 - POST = FV /(1+r)N
 - Step 2: Pre-Money Valuation
 - PRE = POST-INV
 - Step 3: Ownership Fraction
 - f = INV/POST
 - · Step 4: No. of the shares of the PE firm
 - Spe = Se [f/(1-f)]
 - · Step 5: Price per share
 - P = INV/ Spe

IRR Method → 本质就是VC method,只是往期末复利



- •Adjusting the discount rate $\rightarrow r^* = [(1+r)/(1-q)] 1$
- •Adjusting the terminal value → Scenario analysis



LP对GP估值

 \Rightarrow

PIC/DPI/RVPI/TVPI

计算,要做到自己会计算非已知部分

	Capital Called Down	Paid-in Capital	Manageme nt Fees	Operating Results	NAV before Distributions	Carried Interest	Distribu tions	NAV after Distributions
2004	50	50	1.0	-10	39.0			39.0
2005	20	70	1.4	-25	32.6			32.6
2006	30	100	2.0	25	85.6			85.6
2007	20	120	2.4	50	153.2	0.6	20	132.6
2008	10	130	2.6	60	200.0	9.4	40	150.6
2009	10	140	2.8	110	267.8	13.6	80	174.2

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COMMODITY AND COMMODITY DERIVATIVES: AN INTRODUCTION

Commodity And Commodity Derivatives

Characteristics Of Commodity Sectors

Sectors	Products	The factors that influence supply	The factors that influence demand
	Crude Oil	Drilling and extraction technology Political risk	Global economic growth Economic cycles alternative sources of energy
Energy	Refined Products	Extreme weather	Seasonal factors
	Natural Gas	Transportation costs	Seasonality due to weather
Industrial metals Aluminum, Zinc, Iron, Copper		Political factors	GDP growth and business cycles
Grains	Wheat, Corn, Soybeans	Extreme weather	worlds population
Livestock	Hogs, Sheep, Cattle	Price of grain	Income growth
Precious metals	Gold, Silver, And Platinum	NA	Good inflation hedge, wealth, business cycles
Softs	Coffee, Sugar And Cotton	Weather, disease	Income growth 、 consumer tastes

Unlike stocks and bonds, commodities are *physical assets*, have *no cash flows*, and may incur *storage and transportation costs*

Commodity Futures

Traders and investors

Informed investors → Hedger/Speculator

Arbitrageurs

Market Participants

概念

Commodity Exchanges

Commodity market analyst

Regulators



Relationship Between SP & FP



- The term structure will have a negative trend
- Futures price < Spot price
- the basis and calendar spread are positive
- Contango
 - The term structure has a positive slope
 - Futures price > Spot price
 - the basis and calendar spread are negative

Theories of Futures Returns

- Insurance Theory → backwardation is normal
- The Hedging Pressure Hypothesis
- The Theory Of Storage
 - Futures price = Spot price+ Storage costs
 - convenience yield

Roll return *

Backwardation → positive roll return

Contango → negative roll return

Roll return = (St - Ft,T)/St

投资Futures收益★

Collateral return

Spot return

Commodity Swaps

Commodity Swaps

increase or *decrease* exposure to commodities

Total return swap

Excess return swap

Basis swap

Commodity volatility swap

Commodity Indexes

- Returns on a commodity index are affected by how the index is constructed.
 - Components and weighting method affect which commodities have the greatest influence on the index return
 - The methodology for rolling over expiring contracts may be passive or active
 - Frequent rebalancing of portfolio weights may decrease index returns in trending markets or increase index returns in mean-reverting markets
- No index methodology will consistently outperform another over longer period
- Correlations between
 - Correlations between returns on different indexes have been relatively high
 - Correlations between commodity indexes and returns on stocks and bonds have been low.

