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Alternative Portfolio

2017 CFA二级知识框架图

讲师：李斯克
www.pzacademy.com

Reading 43

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

- Office → **Operating Expenses** ★
  - Gross lease
  - Net lease
  - Expenses reimbursement
- Retail → 特殊★：唯一销售额上升时追加租金物业
- Industrial and warehouse
- Multi-Family

掌握基本特征及影响因素

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
Mortgage lending value

➡ *Highest and best* → the highest implied land value

⬇

估值方法1：Income approach ★★

Calculate NOI ★
计算，CF概念

➡ 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

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

计算★，求cap rate
假设owner支付费用

补充 ➡
- **Stabilized NOI★** 计算
- **All risks yield (ARY)** 计算 ➡ $\text{value} = V_0 = \frac{\text{rent}_1}{ARY}$
  假设tenant支付费用

Implied Growth Rate
V=NOI/(r-g)

DCF method →二阶段模型，同GGM

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

⬇ 第二阶段求终值，再折现

求终值★ ➡ 同Equity中求TV方法

Direct Income Approach→ $MV_n = NOI_{n+1}/(r-g) = NOI_{n+1}/R_n$ 区别，R_n与R_0大小关系比较

R_n ★ →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***

Gross income multiplier → $\text{gross income multiplier} = \dfrac{\text{sales price}}{\text{gross income}}$

Limitations

- Ignores vacancy rates
- Ignores operating expenses

折现★ ➡ 计算

Term and Reversion Approach

Layer method

➡ 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**

Replacement → **Reproduction**

已知 目标

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.

Reconciliation Of Value

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

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

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

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

计算 →

Leveraged IRR

Unleveraged IRR

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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

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

P/FFO

Accounting net earnings 最常用方法
+ Depreciation expense
+ 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

P/AFFO

FFO (funds from operations) 比FFO更好方法,会计算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

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PRIVATE EQUITY VALUATION

PE Funds Characters

Value creation in PE

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

不仅投钱

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 ★★

概念

- 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

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
- Diversification risk
- Market 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

risk

- Adjusting the discount rate →r* = [(1+r)/(1-q)] – 1
- Adjusting the terminal value → *Scenario analysis*

Buyout→ Buyout Method 计算

Capital Structure

Common Stock of entrepreneurial

Common Stock of PE

Preferred Stock

→ PE投资，求IRR

Debt

LP对GP估值 ➡ **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	Management Fees	Operating Results	NAV before Distributions	Carried Interest	Distributions	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
	已知			已知			已知	

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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
Energy	Crude Oil	Drilling and extraction technology、Political risk	Global economic growth、Economic cycles 、alternative sources of 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

Market Participants

概念

- Traders and investors → Informed investors → Hedger/Speculator
  - Arbitrageurs
- Commodity Exchanges
- Commodity market analyst
- Regulators

Relationship Between SP & FP

- ***Backwardation***
  - 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

投资Futures收益★

- Spot return
- **Roll return** ★
- Collateral return

Roll return = (St – Ft,T)/St

Backwardation→positive roll return

Contango→negative roll return

Commodity Swaps

Commodity Swaps ➡
- Total return swap
- Excess return swap
- Basis swap
- Commodity volatility swap

increase or ***decrease*** exposure to commodities

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***.


Thank
You!