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CFA LEVEL I

Detailed Formula Sheet



Alternative Investments

Topic 8 of 10 • Fully Explained

💡 Plain-English explanations 📊 Worked examples 🧠 Memory hooks ⚠️ Exam traps

Categories of Alts

Hedge Fund Fees

Commodities

Real Estate

Private Equity

Role in Portfolio

10,000+

Students Trained

350+

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★ Mentored by Deepak Goyal — CFA, FRM ★

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👋 **Topic 8 — Alternative Investments!** Everything beyond stocks, bonds & cash: **hedge funds, private equity, real estate, infrastructure & commodities**. The big draws are **diversification and low correlation** — and the big watch-outs are illiquidity and layered fees. Each card has the key idea, a worked example, and **memory hooks**. 🏛️

💡 **In Plain English** 📊 **Worked Example** 🧠 **Memory Hook** ⚠️ **Watch Out** 📌 **Key Fact**

1 🏛️ Categories of Alternative Investments

📁 The Main Families

Hedge Funds • Private Capital (PE & Private Debt) • Real Estate • Infrastructure • Natural Resources / Commodities

💡 In Plain English

Hedge funds use flexible strategies & leverage. **Private capital** = private equity (ownership) + private debt (lending). **Real estate / infrastructure** = physical assets with steady cash flows. **Commodities** = raw materials, usually accessed via futures.

📌 Common Features

Most alts share: **illiquidity, higher fees, limited transparency, specialized managers, and low correlation** with stocks and bonds — which is exactly why they help diversify a portfolio.

2 💰 Hedge Fund Fees

💰 "2 and 20" — Management + Incentive Fees

Management fee = AUM × mgmt rate | Incentive fee = (Gain above hurdle/HWM) × incentive rate

$$\text{Investor net return} = \frac{\text{End value} - \text{Begin value} - \text{Total fees}}{\text{Begin value}}$$

💡 In Plain English

"2 and 20" = a 2% management fee on assets plus a 20% incentive (performance) fee on the profits. A **hurdle rate** means the incentive only applies above a threshold; a **high-water mark** means no incentive until past the prior peak.

📊 Worked Example

"2 and 20", €100M, +20% gross (€20M profit): mgmt fee = $100 \times 2\% = €2\text{M}$; incentive = $20 \times 20\% = €4\text{M}$.
Net return = $(20 - 2 - 4)/100 = 14\%$.

⚠️ Watch Out

A **high-water mark protects investors from paying twice** for the same gains: after a loss, the manager earns no incentive fee until the fund recovers above its previous peak (net of fees).

Fund-of-Funds: The Double Layer of Fees

Investor pays the underlying hedge fund's fees AND the fund-of-funds' own fees

In Plain English

A fund of funds (FOF) spreads money across many hedge funds and adds due diligence & diversification — but it stacks a **second layer of fees** on top of the underlying funds' fees, dragging down the net return.

Worked Example

FOF "1 and 10" earns 14% (€14M) after the HF's fees: FOF mgmt = $100 \times 1\% = €1\text{M}$; incentive = $14 \times 10\% = €1.4\text{M}$.
Investor net = $(14 - 1 - 1.4)/100 = 11.6\%$ (vs 14% investing directly — the double fee).

3 Commodity Futures Returns

The Three Sources of Return

Total return $\approx$ Price (spot) return + Roll yield + Collateral (risk-free) yield

In Plain English

Commodity index investors hold **futures, not the physical goods**, so returns come from three places: changes in spot prices, the **roll yield** from rolling expiring contracts into new ones, and interest earned on the cash collateral.

Key Fact

Because contracts must be continually **"rolled over"**, an index's return can differ a lot from the simple change in the underlying commodity's spot price.

Contango vs Backwardation

Contango: Spot < Forward (upward curve) | Backwardation: Spot > Forward (inverted curve)

In Plain English

Contango = futures cost more than spot (carry costs > convenience yield); rolling up the curve creates a **negative** roll yield → **lowers** the long-only return. **Backwardation** = futures cheaper than spot; positive roll yield → **enhances** the return.

Memory Hook

"Contango = **COSTLY** (return drag); Backwardation = **BENEFIT** (return boost)." Low inventories → backwardation.

4 Real Estate

NOI & the Capitalization Rate

$$\text{NOI} = \text{Rental income} - \text{Operating expenses}$$

$$\text{Cap rate} = \frac{\text{NOI}}{\text{Property value}} \Rightarrow \text{Value} = \frac{\text{NOI}}{\text{Cap rate}}$$

In Plain English

Net operating income (NOI) is the property's income after running costs (before financing & taxes). The **cap rate** is the property's "yield" — divide NOI by the cap rate to value the property (the income approach).

Worked Example

NOI \$500,000, market cap rate 8% → Value = 500,000 / 0.08 = **\$6.25 million**.

Three Valuation Approaches

Income (cap rate / discounted cash flows), **Comparable sales** (recent similar transactions), and **Cost** (land + rebuild cost – depreciation). Over half of commercial RE return comes from income.

The Risk–Return Spectrum

Senior Debt → Core → Core-Plus → Value-Add → Opportunistic (low risk → high risk)

In Plain English

Core = stable, income-producing, bond-like (leased buildings). As you move right, returns shift from steady lease income toward **speculative price appreciation** (development, distressed) — higher risk, higher potential return.

5 Private Equity

The Two Main Strategies

Leveraged Buyout (LBO): buy a mature firm with lots of debt | Venture Capital (VC): fund early-stage start-ups

In Plain English

LBOs acquire established, cash-generating companies using heavy debt, improve them, and sell. **Venture capital** backs young, high-growth (and high-risk) start-ups. Both aim to exit at a profit.

Exit Routes

Trade sale (sell to a strategic buyer), **IPO** (go public), **secondary sale** (to another PE firm), recapitalization, or write-off. The exit is where most of the return is realized.



The J-Curve & the Waterfall

J-Curve: returns dip early (fees + write-downs), then rise as investments mature & exit

In Plain English

Early in a PE fund's life, returns are **negative** (fees drawn, no exits yet) — then they curve upward as winners are sold. The **distribution waterfall** shares profits between the limited partners (LPs) and the general partner (GP).

Key Terms

Carried interest = the GP's share of profits (often 20%); **hurdle / preferred return** = LPs get a minimum return first; **clawback** = LPs reclaim excess GP fees. American waterfall = deal-by-deal; European = whole-of-fund.

6

The Role of Alternatives in a Portfolio



Why Investors Add Alternatives

Goal: diversification + higher risk-adjusted returns through LOW correlation with stocks & bonds

In Plain English

Because alts often move differently from traditional assets, adding them can **raise returns and/or lower overall portfolio risk**. Real estate and commodities also offer some **inflation protection**.

Watch Out

Reported alt returns can look smoother than reality due to **stale/appraisal pricing**, and hedge fund indexes carry **survivorship & backfill bias** (failed funds dropped, winners backfilled) — both overstate returns and understate risk.

Memory Hook

"Alts diversify — but mind the fees, the lock-ups, and the flattering benchmarks." 