

1. Why Alternatives?

- Low correlation with traditional assets → diversification, inflation hedge, illiquidity premium.
- Higher due-diligence cost, opacity, leverage, liquidity risk.
- **Common features:** limited transparency, heterogeneous assets, manager skill critical, valuation complexity.

2. Real Estate

- Types: residential, commercial (office, retail, industrial), agricultural/timber.
- Valuation: comparable sales, income approach (*direct cap*: $V = \frac{NOI}{\text{cap rate}}$; DCF), cost approach.
- RE indices: appraisal-based (smoothing), transaction-based, REIT indexes.
- Metrics: LTV, DSCR = $\frac{NOI}{\text{Debt Service}}$, cap rate, IRR.

3. Private Equity

- Strategies: Venture Capital (seed, early, later), LBO/MBO, growth equity, distressed/turnaround, mezzanine.
- Fee waterfall: management fee (~2%) + carried interest (~20% above hurdle); clawback provisions.
- **Performance Metrics:** DPI (= $\frac{\text{Realised}}{\text{Paid-in}}$), RVPI, TVPI, PIC, PME.
- Valuation at interim: present value of future cash flows, market comparables, last round pricing.

4. Hedge Funds

- Categories: equity long/short, event-driven, relative-value, macro/CTA, multi-strategy.
- Fee: "2&20", high-water mark, hurdle (hard/soft), redemption gates, lock-up.
- Return characteristics: non-normal (skew, kurtosis); use downside deviation, Sortino, Sterling.
- Benchmark issues: self-report bias, backfill, survivorship; use investable HFRX.

5. Commodities & Managed Futures

- Return = Spot R_s + Roll R_r + Collateral R_c .
- Futures price: $F = Se^{(r+u-y-c_y)T}$; backwardation when high convenience yield.
- CTAs trend-following; managed-futures indices (Barclay, SG CTA).
- Risks: weather, geopolitical, storage, leveraged volatility.

6. Infrastructure

- Brownfield (existing cash flow) vs Greenfield (development); economic vs social.
- Revenue often CPI-linked concessions → inflation hedge.
- Valuation: DCF with long horizon, regulatory WACC; comparables (EV/EBITDA).
- Risks: political, regulatory, construction, demand.

7. REITs & Listed Real Assets

- Equity REITs (own property), Mortgage REITs (hold loans/MBS), Hybrid REITs.
- Must distribute ≥ 90% of taxable income; NAV premium used to assess valuation.
- FFO = Net Income + Depreciation + Amortization – Gains; AFFO adjusts for capex and rent straight-lining.
- Trade like equities: beta ~ 0.6–0.8, but sensitive to interest rates and property cycles.

8. Collectibles & Other Real Assets

- Categories: art, wine, stamps, classic cars, jewellery, rare instruments.
- Unique risk: authenticity, lack of income, storage/insurance, appraisal error, fakes.
- Indexes: Sotheby's Mei-Moses, Liv-ex Wine, HAGI car index.
- Tax often treated as collectibles (higher rate in US).

9. Valuation & Performance

- **Illiquid NAV:** appraisal smoothing → use unsmoothed indices or secondary trades for beta.
- PE performance measures net of fee IRR vs public-market equivalent (PME).
- Hedge fund: value monthly using admin prices; use modified Sharpe, drawdown.
- Real estate: levered/unlevered returns, equity multiples; J-curve in PE.

10. Risk Factors & Due Diligence

- Key risks: market, leverage, liquidity, valuation, manager/key-person, legal/operational.
- Due diligence steps: strategy fit, team & track record, operational controls, service providers, compliance, risk systems.
- Style drift monitoring via exposure and return-based factor attribution.

11. Fund Structures & Liquidity

- Vehicles: LP fund (PE/HF), LLC, master-feeder (offshore), interval fund, '40-Act tender-offer fund, ETF (liquid alts), SMA.
- Capital calls vs committed capital; vintage year diversification.
- Liquidity tiers: daily (liquid alts), monthly/quarterly with notice, lock-ups, side-pockets.

12. Portfolio Role & Allocation

- Real assets: inflation protection, income stability, diversification.
- PE & Hedge Funds: equity-like or absolute-return enhancement; risk parity weighting via volatility targeting.
- Allocation methods: mean-variance optimization with smoothed volatilities, risk-factor budgeting, bucket approach (growth / real return / diversifiers).
- Implementation considerations: liquidity budget, J-curve cash needs, policy benchmark, rebalancing bands.