**CFA 8 Alternative Investments**

**8.1 Alt investment structures**

Traditional investments: Long only in public stocks and bonds

Alternative investments: Private capital, real assets, hedge funds

Potential benefits

* Diversification
* Higher returns from illiquid securities and less efficient markets

Features of alt investments

* More specialised knowledge required
* Low correlations with trad investments (though correlated during recessions)
* Less liquidity
* Longer time horizons
* Larger investment committees

Characteristics of alt investments

* Investment structures that allow direct investment by managers
* Info asymmetry between fund managers and investors
* Hard to judge performance

1) Private capital

* Private equity: Includes LBOs, VC
* Private debt: Includes Venture debt, Distressed debt

2) Real assets

* Real estate: Residential/commercial properties, or debt backed by it
* Natural resources: Commodities, Farmland, Timberland
* Infrastructure: Long lived assets which give public services (roads, airports, schools) – usually gov financed but can have public-private partnerships
* Other: Digital assets, Art, Patents

3) Hedge funds

* Open to qualified investors
* Can use leverage, go long/short, derivatives, illiquid assets

**Investment methods**

Fund investing

* Investing in a pool with other investors
* Investors do not control the investments
* Manager gets a management fee and incentive fee
* Term sheet: Shows investment policy, fee structure, requirements for participation

Co-investing

* Investing in a pool, but investor also can invest directly in some of the assets the manager invests in
* Can reduce fees for investor
* Can increase available funds and scope of investments for manager

Direct investing

* Investor buys asset themselves
* No fees for investor
* Potential less diversification, higher min investment, greater expertise needed

**Ownership and compensation structures**

Alt investments often structured as Limited Partnerships

* General Partner: Fund manager, manages investments
* Limited Partners: Investors, have no say in investments

Limited partnership shares usually only available to accredited investors (wealthy and sophisticated to understand risks)

Limited partnership agreement: Rules and operational details that govern a partnership

* Side letters: Can state special terms
* Most-favoured-nation clause: Special terms offered to other LPs also offered to them

Master limited partnership: Can be publicly traded

**Fee structures**

Management fee (usually 1-2% of fund’s assets) + Performance fee (aka carried interest)

For HF, management fee is calculated from AUM

For PE, management fee is calculated from Committed capital, not Invested Capital

* Committed capital: Is not all invested immediately, is drawn down instead
* Dry powder: Committed capital that hasn’t been drawn down yet

Performance fees: Fees on performance if the hurdle rate is hit

* Soft hurdle rate: Fees based on % of total increase in investment
* Hard hurdle rate: Fees based on only gains above the rate

Catch-up clause: The LPs get their returns first, and then the GPs get their returns until the agreed ratio is met

* Similar to soft hurdle rate
* E.g., Suppose it is a 8% hurdle rate, with 20% management fees – the first 8% of gains goes to LP, the next 2% goes to GP, then its split 80/20

High water mark: No performance fees paid on gains that only offset prior losses

* Needs to be above highest net of fees value previously recorded
* To stop double charging performance fees

Waterfall: How payments are allocated to the GPs and LPs as profits/losses are realised

Deal-by-deal waterfall (American style)

* Profits distributed as each investment is sold (favours GP as performance fees are paid before 100% of LPs original investment and hurdle rate is returned

Whole-of-fund waterfall (European style)

* LPs receive all distributions until that have received 100% of initial investment and hurdle rate

Clawback provision: Allows LPs to recover previously paid performance fees on subsequent losses which negate prior gains on performance fees

* Relevant for Deal-by-deal waterfall

Fee structures can be negotiated

* Different investors can have different returns

**8.2 Alt Investment Performance and Returns**

Alt investments face greater risks than trad investments due to:

* Timing of cash flows over investment life cycle
* Leverage
* Valuation with no observable market prices
* Complexity of fees, taxes, accounting

**Timing of cash flows**

3 phases in life cycle

* Returns follow a J-curve

1) Capital commitment phase

* Identifying investments and making capital calls (investors sending money)
* Returns typically negative

2) Capital deployment phase

* Fund the projects
* Returns typically still negative

3) Capital distribution phase

* Investments generate income
* Returns accelerate and then plateau

IRR: The best after tax measure of performance due to variability of cash flows

* Drawback: Makes assumptions about cost of capital and reinvestment rate

Multiple of invested capital (aka money multiple):

* Ratio of total capital returned plus the value of remaining assets to total capital paid over the life of the investment
* Weakness: Doesn’t take timing of cash flows into account

**Leverage**

HFs like to leverage (have margin financing with prime brokers)

Leveraged return is given by:

is borrowed funds

is unleveraged portfolio

is the rate of return

Risks of leverage:

* Margin calls, can lead to closing positions
* Limit access to additional borrowing

**Valuation of investments**

Fair value can have different assumptions

Fair value hierarchy

1. Traded in active markets and have quoted prices readily available
2. Don’t have readily available quoted prices, but can be values on observable inputs (e.g., derivatives)
3. Rely on unobservable inputs which have few market transactions

Particularly for Level 3, lack of trading means valuations look like initial costs for a while

* Doesn’t reflect exit rates 🡪 Reported returns not accurate

**Returns before and after fees**

Investor redemption risk: Negative returns make investors more likely to redeem

* Funds can have restrictions on early redemptions due to J-curve

Lockup period: Starting period where no redemptions allowed (large fees)

Notice period: Amount of time to fulfil a redemption request (30 - 90 days)

Redemption fees: Used to offset costs when redeeming shares

Side letters: State how individual terms may differ from the standard ones

Fee amounts

* Trade-off between liquidity provisions (lockups and notice) and fees
* 2 and 20, 1 and 10 are common
* Either-or-fees: Max of management fee or incentive fee

Founder class shares: Early investors get better fees/liquidity terms

**Biases in returns**

Survivorship bias: Strong for HFs

* Indexes may have backfill bias 🡪 Overstate returns

Hard to compare funds with each other

* Can use Vintage year

**Returns calculations for alt investments**

Before fee returns: Calculated the same way for any investment

Total fees are generally given by:

is management fee

is performance fee

beginning of period assets

end of period assets

Rate of return for investor after fees:

Fees can also include: Hurdle rates, high water mark, clawback, etc

Management fee can be calculated using beginning of year assets or end of year – READ the question

**8.3 Private capital: Equity and debt**

**Private equity**

LBO: Buys much of a company using debt

* Makes the company private
* PE firm tries to improve the portfolio company’s operations, which pay down the debt

Management Buyouts (MBO): Existing management participates in purchase

Management Buy-ins (MBI): PE firm replaces current management with a new team

VC: Fund start-ups, and receive common equity or convertibles

* Formative stage: Pre-seed 🡪 Angel investing 🡪 seed-stage (VCs join here usually) 🡪 start-up stage
* Later-stage: Comes after production and sales, support growth
* Mezzanine stage: Capital provides to prepare for IPO (mezzanine is hybrid of equity and debt, e.g., convertibles)

Minority equity investing: PE buys less than controlling interest

* Can do Private Investment in Public Equity (PIPE), allows faster investment that public offering

**PE exit strategies**

PE usually buys and sells young companies, with avg holding of 5 years

1) Trade sale: Sell a portion to a strategic buyer

* Advantage: Strategic investor will pay a premium for synergies, fast execution, lower transaction costs
* Disadvantage: Limited buyers, potential resistance from employees

2) Public listing: IPO, Direct listing, or SPAC

IPO: IB underwrites it

* Usually realises a higher price but has high transaction and compliance cost

Direct listing: Stock is floated publicly without underwriters

* No new capital is raised
* Reduced transaction costs

SPAC: A company set up to raise capital and acquire a private company

* Disadvantages: Dilutive effects from SPAC shares and warrants, spread between SPAC value and actual company value, acquisition risk

3) Recapitalisation: Issues debt to fund a dividend to equity holders

* Not an exit, allows money to be extracted from company

4) Secondary sale: Sell to another PE or investors

5) Write off/liquidation: Take losses and reassess

**Risk return from PE**

Higher average and higher volatility than stock returns

* PE indexes have self-reporting, survivorship bias, valued infrequently

**Private debt**

1) Direct lending: Loans without an intermediary

* Leveraged loan: Loan made with money borrowed from other sources

2) Venture debt: Convertible stock or with warrants for start-ups

3) Mezzanine debt: Private debt subordinated to senior debt

* May have conversion rights or warrants

4) Distressed debt: Debt of mature companies in financial trouble

* Fund helps restructure and increase value of debt
* Can try to turn company around

5) Unitranche debt: Combines difference classes into a single loan

* Is inbetween senior and subordinated

Usually have higher return relative to trad bonds

* Higher default and liquidity risk
* Low correlations with other trad investments

MRR is the benchmark rate

**Diversification of private capital**

Private capital correlation with trad investments is relatively low

Vintage year: Year the fund made the first investment

* Early stage performance better if start in boom, distressed performs better if start in downturn
* Should diversify across vintage years

**8.4 Real estate and infrastructure**

**Real estate**

Income: Rent and price appreciation

2 main types: Single family residential, Commercial

Commercial has 4 main subcategories:

* Office, shopping, industrial, rental residential (detached and multifamily apartment)

4 quadrants of real estate investment

|  |  |  |
| --- | --- | --- |
|  | Debt | Equity (controls decision making) |
| Private (usually direct investment, indivisible, illiquid) | Mortgage  Construction loans  Mezzanine debt | Direct ownership  Limited partnerships  JVs |
| Public (no direct investment, are claims on underlying assets, divisible, liquid) | MBS/CMBS/CMOs  Covered bonds  Mortgage REITS  Mortgage ETFs | Construction  Operating  Development  Public REITs  UCTIS/Mutual funds/ETFs |

**Direct real estate investment**

Benefits:

* Full control – can choose how to finance, tenants, etc
* Diversification from bonds and stocks
* Tax benefits – provide deductions for noncash depreciation, interest expense

Drawbacks

* Illiquid, opaque prices
* Hard to manage, need specialised knowledge
* High initial investment needed
* Concentration risk

**Indirect real estate investment**

Can be through limited partnerships, JVs, public securities

REITs: Exchange traded

* Benefits: Exempt from double taxation, no liquidation risk
* Equity REITS invest in real estate directly, Mortgage REITS invest in MBS or CMBS, Hybrid REITS do both

Core real estate strategies: Invest in high quality properties with stable returns

* Safe strategy
* Open ended with indefinite lives

Riskier ones include:

* Core-plus real estate strategy: Modest development and redevelopment
* Value-add real estate strategy: More development and redevelopment
* Opportunistic real estate strategy: Lots of redevelopment, distressed properties, speculation
* Closed end with finite lives

**Real estate investment characteristics**

First mortgages and CMBS are the least risky

* Similar to bonds

Core strategies next least risky

Value-add, opportunistic most risky

REITs are more correlated with equities than direct investment

* Still adds diversification

**Infrastructure**

Includes: Transportation, Utilities, Communications, Social

Ways to invest:

* After construction, can sell or lease them to gov, or operate them yourself
* Can also buy assets to lease

Cash flows generated

* Availability payments: For making it available
* Usage-based payments
* Take-or-pay arrangements: Min purchase price for a specific volume

Greenfield investments: To be constructed

* Follow Build-Operate-Transfer life cycle
* Build (cash outflows), Operate (cash inflows), Transfer (cash inflows)

Brownfield investments: Expand or privatise

* E.g., Sale and leaseback
* Second stage investments: Investments in fully operational facilities

Most investments are direct, but there are some indirect ways

**Characteristics of infrastructure investments**

Brownfield: Stable cash flows, high current yield, little room for growth

* Second stage: Least risky

Greenfield: Lower near term yield, lots of room for growth

Cash flows have low correlation with stocks

Infrastructure debt is safer and less cyclical

Risks

* Regulatory risk
* Leverage
* Cash flows may be lower than expected

Developing country infrastructure has higher returns

Suitable for long term institutional investors

**8.5 Natural Resources**

**Raw land, timberland, farmland**

Can invest directly or indirectly (ETFs, REITS, LLCs, etc)

Can use derivatives

Raw land, timberland, farmland

* Illiquid
* Value driven by location (e.g., proximity to transport, markets, water, soil)

Ways of generating income: Leases, price appreciation, output

Holders

* Farmland: Mostly individuals
* Raw land, timberland: Institutions

Timberland investment management organisations (TIMOs): Can invest in timberland

Financing usually bank loans or private debt

**Commodity features**

3 major sectors: Metals, Agricultural, Energy

* Govs can provide subsidies, price support, can control access

Derivatives are most commonly used for commodities to avoid storage and transport costs

* Futures have no counterparty risk

Other forms of exposure

* ETFs and ETNs (exchange traded notes)
* Managed Futures Funds (e.g., commodity trading advisors) – actively managed, similar to hedge funds or mutual funds

**Commodity valuation**

Futures price can be approximated as:

Contango: Future prices higher than Spot prices

* Little to no convenience yield
* Net cost of carry positive

Backwardation: Future prices less than Spot prices

* High convenience yield
* Net cost of carry negative

Contango bad for long only investors

* Buy at high futures prices and sell at low spot prices (negative roll yield)

Backwardation good for long only investors

* Buy at low futures prices and sell at high spot (positive roll yield)

**Commodity prices and investments**

Supply is inelastic in short run – hard to alter production levels

* Prices can be volatile if demand changes or supply shocks

Agricultural commodities affected by weather and disease

Returns and volatility have been higher than stocks or bonds

* Timberland and farmland have lower volatility
* Correlations low

Tend to move with inflation 🡪 Holding commodities can be inflation hedge

* Commodities outperform during high inflation times

**8.6 Hedge funds**

HF: Pooled investment available for only accredited investors

Drivers of returns: Market inefficiency, price volatility

* Often evaluated on total return or risk adjusted return instead of benchmark
* Can have high-water mark for performance fees

Invest mostly in liquid assets with a shorter time horizon

* Have periodic redemptions

**Hedge fund categories**

1) Equity hedge fund strategies

* Fundamental L/S: Long undervalued securities, short a portfolio of stocks
* Fundamental growth: Long high growth companies, short low growth
* Fundamental value: Long undervalued, short overvalued
* Market neutral: Approx equal amounts long and short
* Short bias: Predominantly short

2) Event driven strategies: Based on corp restructuring or acquisition

* Merger arbitrage: Buy shares if firm being acquired and short firm making acquisition
* Distressed/restructuring: Buy assets that will improve after restructuring
* Activist shareholder: Buy sufficient equity and influence company actions
* Special sit: Invest in firms that are doing buybacks, spinning of divisions, selling assets

3) Relative value: Buying a security and shorting a related one to profit from pricing discrepancy

* Convertible arbitrage fixed income: Price discrepancy between convertible bonds and common stock
* Specific fixed income: Pricing and quality discrepancies
* General fixed income
* Multistrategy: Across asset classes and markets

4) Opportunistic strategies: Macro and commodities

* Macro: Global events and trends
* Managed futures: Commodity futures

**Unique HF characteristics**

Characteristics

* Less regulated with flexible mandates
* Higher fees
* Lower liquidity (can have lockup period, notice period, liquidity gate)
* Can be expensive to redeem shares – liquidity rules offset this

**HF investment vehicles**

Co-mingled funds: Capital from many investors are pooled

Separately managed account (SMA): Single large investor

Master-feeder structure: Used for co-mingled funds

* Tax efficiency, economies of scale, can take global capital
* 2 feeder funds: Offshore (tax haven) and onshore

SMAs allow a custom portfolio

* Have lower fees
* Need more liquid trades

HFs usually limited partnerships or LLC

* Contracts are in Partnership Agreement, Private Placement Memorandum, Articles of Incorporation

Old standard was 2/20 fees 🡪 Shift to 1/30

**Indirect investment**

Fund-of-funds: Investment company that invests in HFs

Benefits

* Get diversification in HF strategy
* Access to less available funds
* More experience in selecting HFs

Charge 1/10 (on top of the HF fees)

**Sources of risk and return**

3 sources of return

1. Market beta – return from market index
2. Strategy beta – from sector exposure
3. Alpha – security selection

Leverage magnifies 2 and 3

HF performance by indexes is often overstated

* Selection bias 🡪 Reporting is voluntary
* Survivorship bias 🡪 Funds fail before reaching indexes
* Backfill bias 🡪 Funds with better returns more likely to be added

More correlated with equities than with bonds

**8.7 Digital assets**

Digital assets: Includes crypto, tokens

Distributed ledger technology (DLT): Secures and validates a digital asset

Crypto has its own blockchains

* Tokens are built on these blockchains

Distributed ledger: Database shared among market participants which has a record of all transactions

* Benefits: Accuracy, transparency, security, quick transfers, P2P monitoring
* Disadvantages: Data protection, privacy issues, huge computational power needed

DLT network: Has digital ledger, consensus mechanism, network of participants

* Consensus mechanism: Validates and updates ledger with immutable records

Smart contracts: Programmes that self-execute on predetermined conditions

Blockchain: Digital ledger that records info within blocks

* Blocks are linked together, only added to chain when validated

**Consensus protocols**

Consensus protocols: Determine how blocks are chained together

Proof of work: When a transaction happens, miners solve a cryptographic problem, which verifies the transaction

* Miners are rewarded with crypto
* Mining resources are too large to manipulate historical record
* Works well with large number of participants

Proof of stake: Network participants pledge collateral (stake) to guarantee validity of a block

* Validators are rewarded with a return on their collateral

**Permissionless and permissioned networks**

Permissionless networks: Transactions visible to all users of the network and anyone can perform any network function

* Advantage: No centralised authority, transactions can’t be manipulated, no need for participants to trust each other

Permissioned networks: Users may be restricted from some network activities

* Advantage: More cost effective

**Crypto**

Cryptocurrency: Digital currency issued privately with no CB backing

* Execute transactions quick with no intermediary
* Usually limit total currency units
* Altcoins: Alternative cryptocurrencies

Stablecoins: Secured by a basket of assets, which protects from price volatility

* Have no legal or regulatory backing
* Asset-backed token: Maintains price parity with an asset (e.g., gold)

Central bank digital currency (CBDC): Digital version of fiat

* Govs do not back or regulate crypto right now

**Tokens**

Tokenisation: Uses DLT to digitally track historical ownership record

* NFTs: Digital asset linked to certificate of authenticity (example of tokenisation)

Security token: Tracks ownership rights in publicly traded securities

* ICO: Unregulated process where companies offer tokens for money, most don’t have voting rights (example of security token)

Utility tokens: Provide network services (service payments, network fees)

* Compensates investors for network activities

Governance tokens: Offered on permissionless networks as voting rights for how network should operate

**Digital asset characteristics**

Key differences between digital and trad assets:

1) Inherent value differences

* Most digital assets are not backed by assets or cash flows 🡪 No fundamental value
* Prices based on scarcity and ability to transfer value

2) Transaction validation differences

* Digital assets recorded on decentralised ledgers
* Trad assets recorded on private ledgers of central intermediaries

3) Medium of exchange differences

* Trad assets priced in fiat, widely accepted
* Digital assets not widely accepted

4) Regulatory differences

* Digital assets lack well developed standards, not regulated on exchanges
* Can be considered commodities, nonfinancial assets

**Investment vehicles**

1) Centralised exchanges

* Privately held
* Offer trading platforms with price transparency and vol information

2) Decentralised exchanges

* No centralised authority, operates on distributed framework
* Attacks are difficult 🡪 Multiple computers used to service exchange
* Hard to enforce regulations

Direct investment: Occurs when transaction is recorded on the blockchain

* Risks: Fraud, losing passkeys, price manipulation from whales

Indirect investment:

* Coin trust: Shares in a trust that holds crypto
* Futures
* Exchange traded products: Using cash/crypto derivatives
* Stocks: Business is related to crypto
* HFs

Asset-backed tokens: Digital ownership of physical/financial assets

* Collaterised by the underlying asset
* Increases liquidity by allowing fractional ownership
* Has immutable record of ownership

dApps enable transactions to be recorded on the blockchain without a centralised system

DeFi: Financial services on open source financial applications

* Marketplace for dApps

**Digital asset returns**

Values depend on asset appreciation

* Limited supply drives prices

Have higher volatility and returns

* Low correlation with trad assets, but higher during market stress