Level III

Alternative Investment, Portfolio Management, and Private Wealth Management

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Book 5

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1. INTRODUCTION

Hedge funds are an important subset of the alternative investment opportunity set, but they come with many *pros* and *cons* in their use and application. The basic tradeoff is whether the added fees involved with hedge fund investing justifies its benefits of portfolio diversification and sufficient additional alpha.

Pros:

- Access to the very best investment talent-managers who can skillfully navigate investment opportunities across a wider universe of markets;
- The alpha that may be produced in down markets is hard to source elsewhere;

Cons:

- High fee levels and complex memorandum documentation to be understood by investors;
- Lack of full underlying investment transparency/attribution;
- Higher costs for the establishment and maintenance of the fund investment structures and;
- Longer commitment periods with limited redemption options;

Each hedge fund strategy carries different types of added *portfolio risks*. For example, significant leverage, less beta exposure, higher volatility in return profiles, extreme tail risk. Some strategies may have higher portfolio diversification benefits, while others may simply be return enhancers rather than portfolio diversifiers.

Hedge funds industry has evolved in its structure over the past decade. ***Liquid alts*** (liquid alternatives) are mutual fund, closed-end fund, and ETF-type vehicles that invest in various hedge fund-like strategies.

In contrast to traditional hedge funds, liquid alts provide daily liquidity, transparency, lower fees and are available to retail investors. However, empirical evidence shows that liquid alts significantly underperform traditional hedge funds which benefit from an illiquidity risk premium.

2. CLASSIFICATION OF HEDGE FUNDS AND STRATEGIES

Key characteristics of hedge funds that distinguish them from traditional asset classes include:

1. **Legal/Regulatory Overview**: Hedge funds face few varying legal and regulatory requirements such that they are available to limited number of sophisticated investors only with a minimum net-worth requirement. Management of traditional hedge funds involves charging management fee as well as an incentive fee.

   Liquid alternatives are offered by many fund sponsors. They are prohibited from charging incentive fee but are highly regulated than traditional hedge funds to ensure liquidity for investors.

2. **Flexible Mandate and Few Investment Constraints**: Traditional hedge funds are relatively unhindered in their trading and investment activities due to flexible mandate. The fund prospectus specifies hedge fund's mandate, objectives and constraints, if any.

3. **Large Investment Universe:** Traditional hedge funds have access to a wide range of investable assets than traditional investments due to lower regulatory constraints and flexible mandates.

4. **Aggressive Investment Styles**: Hedge funds can undertake risky investment strategies such as significant shorting, concentrated positions and foreign securities due to a flexible mandate.

5. **Relatively Liberal Use of Leverage**: Traditional hedge funds often use higher leverage via borrowing securities and derivatives to make the return profiles more meaningful or to hedge away unwanted risks. Use of derivatives may create high "notional leverage" but results in a less risky portfolio.

6. **Hedge Fund Liquidity Constraints**: Compared to liquid alts, privately placed hedge funds involve initial lock-up periods, liquidity gates, and exit windows that allow hedge fund managers to take and maintain their positions. Empirical evidence shows that such privately-placed hedge funds outperform similar-strategy liquid alts by

approximately 100 bps–200 bps, on average, per year.

7. **Relatively High Fee Structures**: Hedge funds charge both1% or more of AUM for management fees and 10% to 20% of annual returns for incentive fees. The incentive fee structure brings into line the interests of the hedge fund manager with those of the fund's investors.

Classification of Hedge Funds

Hedge funds are classified as single manager hedge funds and multi-manager hedge funds. A **single-manager fund** is a fund in which there is one investment strategy/style being used by a portfolio manager or team of portfolio managers.

A **multi-manager fund** can be of two types:

- **Multi-strategy fund** - portfolio managers trade and invest in multiple different strategies within the same fund.
- **Fund-of-hedge funds/Fund of Funds** (FoF)- the FoF manager distributes capital to many different hedge funds following various strategies.

At the single manager and single strategy level, hedge fund strategies can be classified based on the:

- investable instruments (e.g., equities, commodities, foreign exchange, convertible bonds)
- trading philosophy of managers (e.g., systematic, discretionary)
- types of risk assumed by managers (e.g., directional, event driven, relative value)

Some hedge funds use a combination of these criteria.

Hedge Funds Strategies:
We will discuss the following six categories of hedge funds grouping in this reading:

Hedge Funds Strategies:

Exhibit 1 Hedge Fund Strategies by Category

	1	2	3	4	5	6
Categories	**Equity**	**Event-Driven**	**Relative Value**	**Opportunistic**	**Specialist**	**Multi-Manager**
Prime Focus	Equity markets	Corporate events	Relative valuation	Multi asset opportunity set	Niche opportunities	Portfolio diversification
Primary Risks	Equity oriented risks	Event risks	Credit and Liquidity risks	Asset class specific risks	Niche securities /sector risks	Manager specific/ Operational risks
Examples	• Long/Short Equity • Dedicated Short Bias • Equity Market Neutral	• Merger Arbitrage • Distressed Securities	• Fixed Income Arbitrage • Convertible • Bond Arbitrage	• Global Macro • Managed Futures	• Volatility Strategies • Reinsurance Strategies	• Multi- strategy • Fund-of- Funds

Reference: CFA Institute Program Curriculum, Reading 26, Exhibit 1.

The following sections provide detail descriptions of the six categories mentioned in exhibit 1.

3. Equity Strategies

Equity hedge fund strategies invest primarily in equity and equity-related instruments available universally with intelligent long and short stock picking.

Equity hedge funds are classified into three strategies:

1) **Long/short equity hedge fund strategies** hold both long and short positions in equities
2) **Short-biased strategies** focus on strategic short selling of companies
3) **Equity market-neutral strategies** hold balanced long and short equity exposures

3.1 Long/Short Equity

- Long/short (L/S) equity managers tend to buy undervalued stocks and short overvalued stocks based on fundamental research.
- The objective of long/short equity strategies is to take advantage of profit opportunities on both (long and short) sides of the market and size them within a portfolio.
- Long/short equity investing maximizes alpha primarily via ***stock picking*** and secondarily by ***market timing***. Market timing using "*beta tilts*" can also add to manager's performance.
- L/S equity is one of the most dominant hedge fund strategies accounting for about 30% of all hedge funds
- L/S equity managers generally take concentrated positions in high conviction stocks and use leverage to augment their positions. Compared to fundamental managers, quantitative managers mostly use higher levels of leverage.

3.1.1) Investment Characteristics

- The objective of long/short equity investing is to increase ***idiosyncratic alpha*** (primarily via *stock picking* and secondarily by *market timing*) instead of embedded systematic beta.
- Long/short equity managers concentrate on geographic region, sector, or investment style.
- Different L/S equity managers take different exposures to various equity factors. Most long/short equity managers hold net long equity positions because equity markets have a tendency to rise over long term. Some managers retain their short positions as a hedge against unanticipated market declines while others are more opportunistic; they tend to take on more short positions after finding negative issues.
- While considering the appropriate L/S strategies versus traditional long only investing, managers should take into consideration the higher fees associated with the L/S strategies.

Exhibit 2 describes some basic features of long/short strategy.

Exhibit 2 Long/Short Equity—Risk, Liquidity, Leverage

Investment Characteristics	
Risk Profile	Generally net long, with gross exposure at 70%–90% long vs. 20%–50% short.
Return Profile	Average annual returns roughly equivalent to a long-only approach but with a standard deviation 50% lower than a long-only approach.
Liquidity	High
Leverage	Variable; the more levered market neutral (quantitative) strategy application is likely to achieve a significant return.
Attractiveness	Diverse with mark-to-market pricing driven by public market quotes; shorting can reduce volatility of portfolio and beta risk exposure while increasing alpha
Suitability	Both limited partner and mutual fund-type vehicles

3.1.2) Strategy Implementation

- By combining long and short stock positions in a portfolio we get net of beta-adjusted long and short exposure.
- **Specialist L/S fund managers** generally focus on more complex sectors (financial, media, technology) and analyze their prospects using both top down and bottom up approaches.
- **Generalist L/S managers,** on the other hand, avoid complex sectors which seem to be too binary. Generalist managers take a more balanced and flexible approach, but they may miss detailed sensitivities of industries in an era of continuous news streaming.

- Generally, long/short equity investing is a combination of generating alpha from stock selection and some inherently net long embedded beta.

Practice: Example 1 Curriculum, Reading 26.

3.2 Dedicated Short Selling and Short-Biased

i) **Dedicated short-selling** hedge fund managers take short-only positions in overvalued equities against their worsening fundamentals. These managers often hoard higher levels of cash to vary the short exposure of the portfolio.

ii) **Short-biased** hedge fund managers are less extreme. They sell overvalued equities but also maintain a modest long (index oriented) exposure. This approach can help coping with bull market periods.

Note: Both dedicated short-sellers and short-biased managers actively look for shares of companies facing problems such as failing businesses, poor management, fraudulent accounting practices etc.

iii) **Activist short selling** managers take a short position in a given security and then publicly present their research supporting their report. Reputable hedge fund managers earn substantial return when stock price drop after the release of the report.

In the United States, this practice is not believed to be market manipulation by securities' regulators as long as the managers' research is authentic and there is no potential conflict of interest.

3.2.1) Investment Characteristics

- Short-selling managers maximize returns by focusing on negative return correlations with traditional investments such as by investing in:
  - *overvalued* stocks of companies facing deteriorating fundamentals
  - in periods of market stress
- In short selling, managers borrow securities from the lender on interest and sell them in the market. The manager also pay indemnity to the lender for borrowed securities to cover potential loss.
- Short selling is a risky strategy because
  - the lender may demand securities back at a time which could be unfavorable for the hedge fund manager.
  - the short selling positions can incur unlimited losses
  - companies may ban *active short sellers'* access to research reports
- Short selling faces many strict rules in various countries. United States has the "**uptick rule**" where short sales can only take place at prices higher than the current best price. However, short selling can add to *market liquidity* thus, allowed in many developing countries.
- **'Attack and retreat'** style strategy, followed by many successful short-selling managers, is best described as *increasing returns through short-selling when market declines and investing in low risk government securities when the market rises.*

Exhibit 3 Dedicated Short Sellers and Short-Biased—Risk, Liquidity, Leverage

Investment Characteristics	

Risk Profile	• short-selling exposure for:
	  ○ dedicated short sellers is around 60%–120%
	  ○ short-biased is around 30%–60%
	• prime focus for both types of mangers: single equity stock picking

Return Profile	• low return goals but returns are volatile compared to other L/S strategies • negative correlation provide benefit to the portfolio
Liquidity	High
Leverage	Low, as adequate volatility is already present in the market.
Attractiveness	Negatively correlated alpha compared to other strategies, with mark-to-market pricing.
Suitability	Most suitable for limited partnership structure

3.2.2) Strategy Implementation

- Short-sellers often select stocks of companies with financial trouble, blemished businesses, inappropriate accounting or management practices, poor corporate governance etc.
- Such selection requires extensive work, deep analysis, and typically the use of bottom-up approach.

- Helpful tools for analyzing potential short-sell businesses include credit default swap spreads, corporate bond yield spreads, and/or implied volatility of exchange-traded put options.
- Other traditional useful measures include various accounting ratios (such as Altman Z-score, Beneish M-score) and market timing of short sales.

Practice: Example 2 Curriculum, Reading 26.

3.3 Equity Market Neutral

- Equity market-neutral (EMN) strategy mainly take alpha exposure while minimizing/neutralizing the portfolio's beta exposure.
- Managers obtain this objective by taking opposite positions (long + short) in related equities by neutralizing the equities' risk factors at various levels such as sectors, industries, market size, price/earnings, book/market-value ratios etc.
- These approaches use high leverage and highly quantitative methodologies. Managers may use derivatives to attain zero-market beta. The resultant portfolios are often diverse in nature.
- **Pairs-trading** involves identifying two similar securities with a degree of co-integration in their prices. Positions are established when unusually divergent spread pricing between the two paired securities is observed with the expectation of mean reversion in long term.
- **Stub trading** involves buying and selling stock of a parent company and its subsidiaries, weighted by the percentage ownership of the parent company in the subsidiaries.
- **Multi-class trading** involves buying and selling different classes of shares of the same company, such as voting and non-voting shares, to profit from relative pricing.
- **Fundamental trade setups** may be created by finding mispriced opportunities in a company's various asset classes e.g. hedging equities against the bonds of the same company, exploiting mispricing between two classes of bonds).
- **Quantitative market neutral managers:** This approach requires managers to make frequent (e.g. daily) adjustments to portfolio to benefit from the fact that market prices change faster than company fundamentals. However, this frequent rebalancing must be done after considering trading costs.

One extreme form of this strategy is called 'statistical arbitrage trading' which has much shorter time horizon and more emphasis on mean reversion and relative-momentum characteristics of market.

- **Market-neutral tactical asset allocators** or **macro-oriented market-neutral managers** are managers who generate return through alpha and their overall beta exposure is zero.

3.3.1) Investment Characteristics

- EMN managers can take advantage of deviating valuations by trading specific securities while maintaining a net zero beta exposure to the market.
- *Discretionary EMN managers* use significantly less leverage than *Quantitative EMN managers*.
- EMN funds investment can be used as a replacement of fixed-income funds investment, particularly during low interest rate environment and also when yield curve is flat.

Exhibit 4 presents important aspects of this strategy area.

Exhibit 4 Equity Market Neutral—Risk, Liquidity, Leverage

Investment Characteristics	
Risk Profile	Key strategy risk for EMN is forced liquidation of positions arising from margin calls due to adverse price movements in presence of high leverage.
Return Profile	Modest, steadier returns with lower standard deviation and higher diversification
Tine Horizon	Short with more active trading
Liquidity	High
Leverage	High
Attractiveness	No beta exposure. Favorable during market vulnerability and weakness.
Suitability	Limited partnership

3.3.2) Strategy Implementation

Equity market-neutral strategies are executed in four steps:

i. Set the investment universe (by considering securities' features such as tradability, sufficient liquidity, short-selling potential)
ii. Assess securities' buy or sell prospects (by using various models such as fundamental, technical, momentum-based)
iii. Construct a portfolio with a net zero beta exposure to the market;
iv. Consider inclusion of leverage in terms of its cost, availability and its risk to the portfolio as well as portfolio rebalancing methods and costs.

Practice: Example 3 Curriculum, Reading 26.

4. EVENT-DRIVEN STRATEGIES

- Event-driven (ED) hedge fund strategy managers tend to profit by taking advantage of corporate events (before or after the event). Corporate events may include mergers & acquisitions, bankruptcies, share issuances, buybacks, capital restructurings, re-organizations, accounting changes etc.

- Two types of event-driven approaches are:
  i) **soft-catalyst event-driven approach –** investments are made in anticipation of an event
  ii) **hard-catalyst event-driven approach–** investments are made in an already announced corporate event to take advantage of stock mispricing

Note: Soft-catalysts approach is riskier and more volatile than hard catalyst approach.

- Two common example of ED hedge funds discussed below in detail are:
  i) Merger arbitrage
  ii) Distressed securities

4.1 Merger Arbitrage

Two types of Mergers and acquisitions categorized by their method of purchase are:

i) *Cash-for-stock* (offering cash premium to acquire stocks of target company (T))
ii) *Stock-for-stock* (offering acquiring company's shares (A) in exchange of target company's shares (T))

4.1.1) Investment Characteristics

- Merger arbitrage managers take different positions depending on their view about the acquisition. For example, purchasing shares of target company in anticipation of an increase in the value of these shares or selling shares of target company and buying acquiring company's shares if they expect acquisition will not occur

- Substantial time lag between merger announcement and closing of deals often increases the risk of merger failure. Hostile takeovers are less likely to be successful than friendly takeovers.

- Merger arbitrage typically offers a 3%–7% return spread depending on the deal-specific risks, earning net annualized returns in the range of 7%–12%, with little correlation to non-deal-specific factors. Average time for merger deal completion is 3-4 months—with managers reusing capital into new deals several times a year.

Resemblance of merger acquisition strategy

i) Due to the binary nature of merger acquisition events, such strategies can be viewed as insurance business i.e. "*selling insurance on the acquisition*". If acquisition goes successful hedge fund managers earn spread for taking the event risk, if acquisition fails, the managers bear losses.

ii) Merger arbitrage strategy can also be viewed as

owing a risk-free bond + short put option
or
owing a risk-free bond + short put option + owing call option

Note: owing additional call option is in case when there is another acquirer interested in the target who offers higher bid (i.e. White Knight)

Risk and return attributes of merger arbitrage investing.

Exhibit 5 Event-Driven Merger Arbitrage—Risk, Liquidity, Leverage

Investment characteristics	
Risk Profile	• The strategy has market sensitivity and left-tail risk attributes during market stress periods • Cross-border merger and acquisition often face anti-trust scrutiny. These situations carry higher risks and offer wider merger spread returns.
Return Profile	Insurance like with a short put option Often defined gains from single stock takeover position
Liquidity	High
Leverage	Moderate to High; 3 to 5 times leverage
Attractiveness	Relatively high Sharpe ratio
Suitability	Preferably Limited partnership but low-volatility liquid alts merger arbitrage funds do exist

4.1.2.) Strategy Implementation

Merger arbitrage strategies commonly use common equities, however, other corporate securities such as stock, senior/ junior debt, convertible securities, options and derivatives, may also be used for positioning and hedging purposes.

Practice: Example 4 Curriculum, Reading 26.

4.2 Distressed Securities

Distressed securities strategies focus on firms that are either under financial stress/bankruptcy or facing potential bankruptcy.

Hedge funds, because of their unconstrained nature, take positions in such securities that are often trading at significant discount.

Some hedge fund managers **actively invest** in distressed companies by building concentrated positions and placing representatives on the boards of the companies.

Other distressed managers may play a **passive** role by depending on others to restructure the firm's capital and to deal with the related legal issues.

Distressed debt, equities or other illiquid assets often require external valuation specialists for fair value estimates.

As a result of bankruptcy, firms are either liquidated or re-organized.

- Assets of liquidated firms are distributed in order of priority of claims.
- When firm's capital structure is re-organized, sometimes current terms are revised such that the value recovery prospects for equity holders are nil.

4.2.1.) Distressed Securities

Distressed securities investing is risky and requires specialized set of skills and supervision because of the involvement of legal proceedings as well as inconsistencies in information & security valuation etc.

Depending on relative pricing, managers may establish ***"capital structure arbitrage"*** positions. For example, to offset some risk, manager may take opposite positions across different asset classes of the same company.

Exhibit 6 Distressed Securities—Risk, Liquidity, Leverage, and Benchmarking

Investment Characteristics	
Risk Profile	More variability; long biased; security specific outcomes. Though, economic conditions may affect these outcomes as well.
Return Profile	Results are binary. Typically, higher end event-driven strategies are more variable
Liquidity	Low
Time Horizon	Typically, long
Leverage	Moderate to Low; 1.2 to 1.7 times of NAV and with some of the nominal leverage from derivatives hedging
Attractiveness	Attractive in the early stages of an economic recovery after a period of market dislocation
Suitability	Limited partnership

4.2.2.) Strategy Implementation

Hedge fund managers take several approaches when investing in distressed securities.
In case of liquidation, if the estimate of recovery value is higher than market expectations, they can go long on undervalued debt/equity securities in hopes of realizing the higher recovery rate.

In a reorganization situation, manager will evaluate the different securities of the company in question and purchase undervalued securities given the likely re-organization outcome.

Identifying **Fulcrum securities** (i.e. whose holders will be able to get control of the organization) can enable investors to influence re-organization in a way to maximize benefits for investors (e.g. wiping out existing equity and debt; getting control of the organization).

Subsequent IPO of rehabilitated organization can give the manager exit from the investment.

Practice: Example 5 Curriculum, Reading 26.

5. Relative Value Strategies

- Relative value strategies tend to generate profit by exploiting relative value differences between securities, such as by reflecting changes in securities' credit quality, implied volatility, liquidity.
- Usually, relative value strategies can generate returns under normal market conditions but may result in losses during crises.
- Common types of relative value strategies are:
  - Fixed-income arbitrage
  - Convertible bond arbitrage

5.1 Fixed-Income Arbitrage

Fixed income arbitrage strategies tend to generate profit by exploiting mispricing in a range of debt securities e.g., corporate bonds, sovereign bonds, bank loans, consumer debt.

5.1.1) Investment Characteristics

- Fixed-income arbitrage is created to exploit temporary mispricing by purchasing undervalued securities and selling overvalued securities with the expectation of mean reversion within the specified time frame.
- Mispricing may arise as a result of changes in credit quality, liquidity, optionality, issue sizes, duration or by anticipating twists or shifts in the shape of a yield curve.
- Fixed-income arbitrage can be referred to as L/S credit trading.
- As fixed income arbitragers take both long and short positions, their strategy is naturally immune to small shifts in interest rate changes unless yield curve exposure is established purposely.
- To hedge against large yield changes, managers can use a range of fixed-income derivatives, including futures, forwards, swaps, and swaptions.
- Derivatives are also used to hedge other risks (e.g. sovereign risks, credit risks, pre-payment risks)
- Fixed-income arbitrage strategies often apply high leverage i.e. 4 to 5 times (assets to equity) leverage ratio is common, the ratio can sometimes be as high as 12 to 15 times.
- Mortgage-related securities have additional risks where pool of securities is split into various tranches by maturities, degree of risks or liquidity.
- Through broad and diverse fixed income market offer opportunities to identify relative value mispricing however, liquidity becomes a major concern in off-the-run securities, sovereign-backed debt securities, municipal bonds or corporate debt securities.

Some key points of fixed-income arbitrage appear in Exhibit 7.

Exhibit 7 Fixed-Income Arbitrage—Risk, Liquidity, Leverage

Investment Characteristics	
Risk Profile	Drivers of risk-return include: • High correlations among securities • Yield spread pick-up • Pricing affected by different credit quality and convexity aspects. • Added complexity due to structured products.
Liquidity	• Depends on strategy and type of instrument used. • On-the-run-government securities are highly liquid.

Investment Characteristics	
	• Liquidity decreases in other sovereign, corporate debt markets, mortgage securities
Leverage	High; but leverage availability shrinks with product complexity as prime brokers demand higher cushion against market volatility and illiquidity"
Attractiveness	• Wide diversity of debt securities across different markets • Correlations between these bond securities. • Yield spread between securities
Suitability	Both Mutual funds and Limited partnership

5.1.2.) Strategy Implementation

Two subgroups of fixed-income arbitrage strategies are:

i) **Yield curve trade**
ii) **Carry trade**

i) **Yield Curve Trades:** taking long and short position for a specific time horizon depending on the manager's outlook about the shape of the yield curve.

One such strategy is ***calendar spread strategy*** - Managers take long and short positions at various points on the yield curve to gain profit from changes in yield curve (curve flattening/steepening) where securities typically from the same sector/industry, may be from the same issuer or different issuers. Credit and liquidity risk may rise in case securities belong to the different issuers.

ii) **Carry Trades:** Buying a security with higher interest rate and selling a fixed income security with lower interest rate with the expectation of mean reversion.

In a successful carry trade, managers earn profit from two sources
- *positive carry* (due to prevailing interest rate difference)
- *price difference* when mean reversion occurs (due to spread narrowing)

Note: The payoff of carry trade strategy resembles short put option

Practice: Example 6 Curriculum, Reading 26.

5.2 Convertible Bond Arbitrage

Convertible bonds are "combination of debt securities plus long call option on equity with exercise price equal to strike price x conversion ratio'.
Out of the money convertible bond act as a straight bond.

In the money (call) convertible bond act as underlying equity.

5.2.1) Investment Characteristics

Convertible securities are:

- complex in nature and somewhat difficult to understand
- thinly-traded as these securities are often issued by small sized-companies
- influenced by several factors (e.g. interest rate levels, credit spreads, embedded stock options, situation of bonds' cash flows, stock price changes, volatility etc.
- are often traded at relatively lower implied volatility as compared to the historic volatility level of their underlying equity
- traded cyclically in relation to the new issuance of such bonds

Issues associated with convertible bonds "accepting versus hedging risks"

Managers should take into consideration the relative attractiveness of convertible bonds in terms of accepting or hedging the other risks (credit, market, interest rate, corporate etc.).

Hedging involves costs. Tools used for hedging the undesirable risks may include interest rate derivatives, credit default swaps, delta adjusted short sales, options.

Even when managers choose not to hedge, they still can apply different styles and methods through making some changes to their convertible bond positions to adjust their risk exposures (under-hedging/over-hedging) e.g.

- *Credit-oriented convertible managers* – undertake their convertible bond position from a credit risk perspective
- *Volatility-oriented convertible managers* – overhedge their equity risk against increased volatility

Exhibit 8 Convertible Bond Arbitrage—Risk, Liquidity, Leverage

Investment Characteristics	
Risk Profile	• strive to extract "underpriced" implied volatility from long convertible bond holdings • left tail risk during market stress • do not perform well during extreme market volatility
Liquidity	Low; as securities are thinly traded and complex in nature and there is involvement of cost to borrow underlying equity for short selling.
Leverage	High; typically, portfolios are 300% long vs. 200% short
Attractiveness	works best in times of high convertible issuance, moderate volatility and reasonable market liquidity

5.2.2.) Strategy Implementation

1. Buy undervalued convertible bond (undervalued because market is pricing the bond with less chances of conversion i.e. low implied volatility) and sell short underlying stock (to hedge long position in convertible bonds)
2. Number of shares short sold should be adjusted based on delta of the call option (embedded in convertible bond)
3. As delta of call option will change with change in stock price (i.e. Gamma); number of shares sold should be adjusted to maintain hedge (not adjusting number of shares will expose arbitragers to potential gain from change in equity prices)
4. If realized volatility is more than market expected volatility (reflected in the price of convertible bond); arbitrageur will gain.

Major concerns for a convertible arbitrage strategy

i) Short-selling can cause losses when the lender demand securities back at a time which could be unfavorable for the hedge fund manager.
ii) When credit risk is unhedged, changes in credit spread (widening/narrowing) changes the value of equity and convertible bonds.
iii) Time passes and conversion option approaches expiry and thus losses value. Arbitrageur will incur losses because of long position in convertible bonds.

Practice: Example 7 Curriculum, Reading 26.

6. Opportunistic Strategies

- Opportunistic hedge fund strategies seek to profit from ***wide range*** of global investment opportunities and techniques (in asset classes, sectors, regions etc.).
- Global matters, global relationships, market trends, and cycles affect their returns.
- Opportunistic strategies, often difficult to classify, can generally be divided based on:
  1) Type of analysis and approach (*technical or fundamental*)
  2) Implementation of trading decisions (*discretionary or systematic*)
  3) Types of instruments and/markets in which they trade.
- **Discretionary implementation** relies on managers' skills and ability to make investment decisions and to process new information. Such strategies are often subject to behavioral biases.
- **Systematic implementation** is rules-based and executed by computer algorithms with limited human intervention. Such strategies sometimes cause:
  - difficulty in processing new, complex situations.
  - "*herding effect*" due to reversal of multiple trend-following models that can temporarily distort market prices and affect liquidity.
- Two most common opportunistic hedge fund strategies are:
  i) global macro strategies
  ii) managed futures

6.1 Global Macro Strategies

Global macro managers typically:

- profit by forecasting a wide range of global investment prospects including global macro views, relative economic health and central bank policies of different countries, global yield curve relationships, trends in inflation, relative purchasing power parity and capital trade flow aspects of different countries.
- are heterogenous as a group as they trade a wide variety of instruments, asset classes and markets such as derivatives, commodities, currencies, fixed-income/equity indexes, corporate bonds/stocks, sovereign debt securities etc.

6.1.1) Investment Characteristics

6.1.2) Strategy Implementation

Investment characteristics and strategy implementation of global macro managers are provided below.

	Global Macro Managers
Type of analysis and approach	Fundamental and Technical (apply appropriate method and timing to express tactful views)
How trading decisions are implemented	Discretionary and Systematic
Views taken by managers can be	Directional (to benefit from *normalization)* or Thematic (buy *the wining* companies or short-sell *the loosing* companies).
Types of instruments and/markets in which they trade	A wide range of instruments asset classes and markets. Positions may involve mix of securities, basket of securities, derivatives etc.
Return Sources	volatile returns, typically through accurately forecasting global trends
Risks	Unexpected adverse events, high volatility
Leverage	Typically, 6 to 7 times of funds' assets

Practice: Example 8 Curriculum, Reading 26.

6.2 Managed Futures

Managed futures strategy tends to profit by investing in futures, options on futures, index futures and sometimes on forwards, swaps, commodities and currencies.

6.2.1) Investment Characteristics

Managed futures provide diversification benefits and better risk-adjusted return when added to traditional portfolio because of their low correlation with stocks and bonds.

Range-bound (non-trending) markets dampened returns of managed futures in the recent past.
In rising interest rate environment, correlation of fixed income managed futures with equity markets has changed compared to falling interest rate environment which was prevalent in recent past.

Managed futures characteristics

- Liquid strategies as futures markets are highly liquid and actively traded markets
- Applicable on wide range of asset classes
- In futures markets, comparatively little capital is required to take positions (long or short) with higher leverage.

6.2.2) Strategy Implementation

Most managed futures strategies are based on 'pattern recognition'. Pattern can be identified based on trend or volatility signal. Core long term models are supplemented by short-term mean reversion forecasts.

Core Strategies: Momentum/Trend and breakout (volatility signal)

Additional considerations: Carry relationships or volatility factors

Decrease **asset position** (size) if:
1) volatility of asset is high
2) correlation of the asset's return with other assets is high.

Two managed futures approaches are:

1. ***Time-series momentum (TSM)* trend following** – the most common approach
   In TSM, managers take long position in assets that are rising in price and short position in assets that are falling in price. The net position can be either short or long. TSM is driven by the asset's past returns

2. ***Cross-sectional momentum (CSM)* strategies** – less common approach

CSM implement cross section of assets within an asset class by taking long and short positions in a way that the net exposure is zero (market-neutral position)

Exhibit 9 Managed Futures and Global Macro Strategies—Comparison of Risk, Liquidity, Leverage, and Benchmarking

Characteristics	Managed Futures Strategies	Global Macro Strategies
Risk Profile	Significant crowding effects and execution slippages	Less significant crowding effects
Return Profile	• Cyclical and volatile returns • Exhibit positive right-tail skewness in periods of market stress, which is very useful for portfolio diversification	• Cyclical and volatile returns • Offer diversification in stress periods but with more heterogeneous outcomes
Manager's Approach	Generally, apply more ***systematic*** approach	Generally, apply more ***discretionary*** approach
Liquidity	High	High
Leverage	High; 6 to 7 times of assets value with initial margin-to-equity of just 10%–20%	High; active use of options adds to leverage and positive convexity
Attractiveness	Portfolio diversification in periods of market stress	Portfolio diversification in periods of market stress

Practice: Example 9 Curriculum, Reading 26.

7. Specialist Strategies

Specialist hedge fund strategies require specialized manager skills who tend to profit by following some niche markets.

Two categories of specialist hedge fund strategies are:
Volatility trading
Reinsurance life settlements

7.1 Volatility Trading

Managers trade on the basis of relative volatility (buying cheap volatility selling expensive volatility) to exploit volatility mispricing on assets/asset classes trading globally across various regions.

Managers may also profit by trading actively in higher gamma markets.

7.1.1) Investment Characteristics and Strategy Implementation

1. **Time-zone arbitrage** – a relative-value volatility trading of globally traded assets/asset classes (at various time zones) to capture the volatility spread. For example, managers can buy options on assets trading at lower volatility levels in one region and sell similar options trading in another region to take advantage of inconsistencies in the options' volatility levels at different time zones.

2. **Cross-asset volatility trading** – buying volatility on one asset and selling volatility on another asset to benefit from mispricing of implied volatility is called cross-asset volatility trading.

3. ***Outright long volatility traders*** simply buy volatility against consistent volatility sellers.

   Long volatility strategy

   - acts as a diversifier to the portfolio
   - are inversely related to the equity market returns as volatility levels typically escalate when equity markets fall.
   - involves costs (option premium)
   - is convex (large upside potentials, small upfront cost)

4. ***Selling volatility strategy***, on the other hand, earns volatility risk premium for providing insurance to equity-holders against market downturns

Note: Volatilities naturally exhibit mean reversion behavior. Volatility futures are affected by mean-reverting nature of volatility more

explicitly than some other volatility derivatives (e.g. exchange traded options, OTC options, variance swaps and volatility swaps).

Implementing a volatility trading strategy

1. *Using exchange-traded options:* Traders use types of several option spreads (bull, bear, straddle, calendar etc.) to capture relative attractiveness in terms of timings and strike prices.

- Maximum maturity for these options is around two years
- Long-dated options exhibit higher vega exposure
- Shorter-dated options exhibit higher gamma exposure
- Traders should carefully monitor term-structure of volatility, volatility smile across various strike prices, volatility skew etc.

2. *Using OTC options:* Provide more customized options regarding tenor, strike prices etc., but are subject to counterparty risk and illiquidity risk.

3. *Using VIX Index futures (or options on VIX futures):* provide pure volatility view without involving constant delta hedging.

   However, mean reversion nature of volatilities entices many traders to sell volatility to earn premiums (on options and on volatility roll down).

4. *Purchasing OTC Volatility Swap or Variance Swap from creditworthy counterparty*

   Volatility swap →forward contract on future realized price volatility

   Variance swap →forward contract on future realized price variance

   Both these swaps:

- provide pure volatility exposure without involving constant delta hedging.
- are used to predict future volatility, to earn spread between realized and implied volatility or to hedge volatility exposures on various positions

Key aspects of volatility trading are presented in Exhibit 10.

Exhibit 10 Volatility Trading Strategies—Risk, Liquidity, Leverage

	Investment characteristics
Risk Profile	More counter-party and liquidity risk in case of OTC options and swaps
Return Profile	Option premium sellers generally extract steadier returns in normal market environments
Liquidity	Varies; o Highly liquid→ VIX Index futures, options o Liquid→xchange traded index options-generally o Less liquid→OTC contracts
Leverage	Applying leverage is easy
Attractiveness	Long volatility is asymmetric in nature and skewed to right (limited upfront cost, prospects of huge gains)

Practice: Example 10 Curriculum, Reading 26.

7.2 Reinsurance/Life Settlement

In the last few decades, secondary market for reinsurance businesses has gained popularity and has provided hedge funds a source of return unrelated to their traditional investments. Improved liquidity and value of insurance contracts, is also advantageous to insurance companies in term of capital and credit management as well as risk transfer,

Policyholders who no longer need their policies, sell their policies to brokers at higher cash values than the surrender values. Hedge funds purchase these policies from the brokers to take advantage of distinct/unrelated investment prospects.

7.2.1) Investment Characteristics and Strategy Implementation

1. **Life settlement strategy** – a hedge fund strategy focusing on a pool of life insurance policies offered by a broker.

   - Hedge fund managers requires detailed analysis of expected policy cash flows, time to mortality, policy/actuarial requirements etc. Salient features of their analysis include:

     i) Surrender value (low is better)
     ii) Ongoing premium payments (low is better)
     iii) Probability of death (high is better)

- Once hedge fund managers select suitable policies, they pay policy holders in lumpsum (via brokers) in exchange of right to receive future death benefits from the insurer and taking responsibility for remaining upcoming premium payments.

Note: The life settlement hedge fund strategy analysis is uncorrelated to the financial market performance.

2. **Catastrophe insurance strategy** – another hedge fund strategy where hedge funds deal with the reinsurance companies (who provide protection to insurance companies against a portion of their exposure '*catastrophe insurance policies*' provided to policy holders).

- Catastrophe insurance coverage include protection against events such as earthquake, catastrophic weather events, tsunamis etc.
- Hedge funds provide capital to reinsurance companies in return of attractive return prospects and diversification benefits. While analyzing such investments hedge funds manager should take into consideration the following aspects:

i) Adequate premium income
ii) Adequate loan loss reserves from insurance company
iii) Diversity in geographic exposure and types of risks covered

- Sophisticated high-tech models can be used to predict weather patterns and loss potentials in catastrophic events.
- Hedge fund managers can also use catastrophe bonds and futures to hedge or manage their risks from investment in insurance contracts.

Practice: Example 11 Curriculum, Reading 26.

8. Multi Manager Strategies

Multi-manager strategies are used when managers combine two or more individual strategies in their portfolio. Three main approaches to combine these individual strategies are:

1. **Making managers' own mix** - by investing directly in various individual hedge fund strategies
2. **Fund-of-funds (FoF)** – by investing in single FoF hedge fund, which in turn invests in multiple hedge fund strategies of various managers.
3. **Multi-strategy funds** - by investing in a single hedge fund pursuing various hedge fund strategies by a team of multiple hedge fund managers working under the same roof.

8.1 Fund-of-Funds

Fund of funds is a pooled investment fund that invest in various distinct hedge funds.

Benefits of FoF investment approach

- Improved diversification and enhanced liquidity
- Ability to perform style-based/sector-based/tactical re-allocation
- Selection of skilled managers
- Research expertise
- Due diligence
- Entrée to closed hedge funds
- Economies of scale
- Ongoing portfolio management
- Currency control/management
- Leverage opportunities and risk management at portfolio level
- Valuable concessions

Disadvantages of FoF investment approach

- a double layer of fees for investors (additional management and performance fee on total FoF performance)
- no transparency (about various hedge fund managers' processes and returns
- no net performance fees on individual managers
- principal–agent relationship problems

Liquidity Management of FoFs

FoFs require initial lock-up period which sometimes may cause liquidity squeeze for FoF managers. In addition, FoFs often require reserve line of credit as protection for handling liquidity issues (to deal with the cashflows

imbalance cash available versus cash required for redemption).

8.1.1) Investment Characteristics

FoF hedge fund strategy is ***suitable*** for *small high net worth investors and small organizations* because compared to FoF, selecting many hedge fund managers individually:

- requires significant amount of capital
- is time consuming and resource hungry undertaking
- involves considerable tax reporting obligations
- does not include access to some high-profile close hedge funds

Many large institutional investors (endowment, foundations, pension plans) prefer investing in FoF instead of selecting individual hedge fund experts as there are numerous benefits of using FoF (provided above in 8.1).

Many commercial banks offer levered capital (collateralized by existing hedge funds' assets) to FoFs which can be a beneficial approach from a bridge loan perspective.

Many large scaled FoFs have capacity to provide their clients valuable terms, concessions, reduced fee structure and improved liquidity & transparency.

8.1.2) Strategy Implementation

Implementation of FoF portfolio normally involves several months and numerous steps. General description of these steps is provided below.

1. FoF managers **meet up** with various hedge fund managers with the help of brokers and various databases. Hedge fund managers demonstrate their experiences, investment styles and competence.
2. FoF managers then **agree on their preferred strategic allocation** involving various hedge fund strategy groups.
3. A **formal manager selection process** is started where managers select hedge funds from available hedge funds universe applying qualitative/quantitative; top-down and bottom up approaches.
4. Next, **interviews and review process** are conducted over several meetings to understand the potential hedge fund managers' investment philosophy, portfolio construction, risk/operational management processes.
5. Final **scrutiny and due diligence process** are commenced for approved candidates which involves evaluation of partnership documents, verification of their service providers (auditors, brokers, advisers) and other related investigations and due diligence.
6. FoF managers then **negotiate** for concessions, improved liquidity and transparency, capacity rights etc. The higher the invested capital, the better the negotiations.
7. Lastly, **monitoring and reviewing process** involves checking on performance, investment objective consistency, detection of style drift, regulatory issues etc.

8.2 Multi-Strategy Hedge Funds

Multi-strategy hedge fund pursues various hedge fund strategies by a team of multiple hedge fund managers who work under same operational and risk management system in the same company.

8.2.1) Investment Characteristics

Compared to FoF managers, multi-strategy managers

- are quicker and more efficient in reallocating capital to various strategies
- work in full transparency
- better manage portfolio risk
- can make tactical movements more quickly in dynamic markets
- stay focus on their prime activities as issues such as (administrative, business, operational) are handled by other participants
- attract investors because of lower investor fees (in FoF funds, investors bear netting risk whereas multi-strategy funds bear netting risk internally)

Netting risk FoF versus Multi-strategy funds:

- Netting risk occurs when investors have to pay performance fee to winning hedge fund managers despite the investors' overall poor portfolio permeance. This occurs in case of FoF.
- In multi-strategy funds, GP (general partner) bear netting risk and investors only pay incentive fee on overall portfolio performance. However, netting risk is damaging for retaining multi-stagey fund' employees.

- Some multi-strategy funds offer 'pass through fee model' where some portion of netting risk is borne by the investors.

Disadvantages of multi-strategy funds include:

- higher use of leverage which can be extremely risky during market stress
- operational risk as all operations are performed under the same company
- limited manager skills and scope of strategies

8.2.2) Strategy Implementation

Multi-strategy hedge funds invest in various strategies depending on the size and skills of the group.

Multi-strategy managers not only apply strategic and tactical allocation but also reallocate capital and shift strategies more efficiently.

Multi-strategy funds can perform integrated risk management among strategies more systematically.

Exhibit 11 Fund-of-Funds and Multi-Strategy Funds—Comparison of Risk, Liquidity, Leverage.

Characteristics	Fund of Funds	Multi Strategy Funds
Risk Profile	• Less transparency and slower tactical reaction time • Netting risk	Higher manager specific operational risks
Return Profile	Steady and low volatility returns	• Steady and low volatility returns; generally, outperform FoFs • Faster tactical allocation
Liquidity	Low; initial lock up periods	Low; some redemption gates often available
Leverage	Moderate	High
Attractiveness	• Portfolio diversification • More diverse strategy mix	Portfolio diversification Improved fee structure
Suitability	Limited partnership	Limited partnership

Practice: Example 12 & 13 Curriculum, Reading 26.

9. Analysis of Hedge Fund Strategies

Table below shows some common strategies and their related risks (discussed earlier).

	Strategies	Associated Risks
1	**L/S equity** **Event-driven**	Equity-market beta risk
2	**Arbitrage**	Credit-spread risk Market-volatility tail risk
3	**Opportunistic**	Market-directionality risk
4	**Relative-value**	Mean-reversion (timing) risk
5	**Long + Short**	Non-zero net exposure

Hedge fund strategies are inherently dynamic in nature. Therefore, ***conditional linear factor models*** skillfully evaluate average risk exposures of hedge fund strategies under normal and abnormal (crises) market conditions.

9.1 Conditional Factor Model

A sample conditional factor model can be represented as:

$$(Return\ on\ HF_i)_t = \alpha_i + \beta_{i,1}(Factor\ 1)_t + \beta_{i,2}(Factor\ 2)_t + \cdots \beta_{i,k}(Factor\ K)_t + D_t\beta_{i,1}(Factor\ 1)_t + D_t\beta_{i,2}(Factor\ 2)_t + \cdots D_t\beta_{i,K}(Factor\ K)_t + (error)_{i,t}$$

Where

- $(Return\ on\ HF_i)_t$ = return for hedge fund I in period t
- α_i = intercept for hedge fund i
- $\beta_{i,1}(Factor\ 1)_t$ = exposure to risk factor 1in time t during normal market condition
- $D_t\beta_{i,1}(Factor\ 1)_t$ = incremental exposure to risk factor 1 in time t during financial crises where D (dummy variable) is 1 in financial crises and 0 in normal condition.
- $(error)_{i,t}$ = random error with zero mean

Portion of hedge fund returns unexplained by model's risk factors are attributed to three sources:

i) Alpha (manager's unique skills)
ii) Omitted factors
iii) Random errors

According to Hasanhodzic and Lo (2007), the model begins with the following six factors:

1. Equity risk (SNP500) – S&P 500 total return index
2. Interest rate risk (BOND) – Bloomberg Barclys Corporate AA Intermediate Bond Index
3. Currency risk (USD) – US dollar index return
4. Commodity risk (CMDTY) – Goldman Sachs Commodity Index return
5. Credit risk (CREDIT) – yield spread between Baa and Aaa corporate bonds provided by Moody
6. Volatility risk (VIX) – CBOE volatility Index (1st difference of the end of month value)

Note: All above-mentioned returns are monthly returns.

Reference: See Exhibit 12 for Interpretation of Conditional Risk Factor Exposures, Reading 26 CFA Institute's Curriculum

9.2 Evaluating Equity Hedge Fund Strategies

Using data from the CISDM and TASS databases performance measures are calculated to evaluate performance of equity hedge fund strategies. Measures include Sharpe ratio, Sortino ratio, Treynor ratio, Information ratio, return on VAR, Jensen's alpha, M^2, maximum drawdown and gain-to-loss ratio.

Practice: Example 14 Curriculum, Reading 26.

9.3 Evaluating Multi Manager Hedge Fund Strategies

A study (2000-2016) of multi-manager hedge fund strategies indicates that compared to FoF, multi-manager hedge funds have shown:

- superior returns
- higher mean returns
- highest Sharpe ratios and Sortino ratios.
- higher Rho compared to FoF (signifying higher serial autocorrelation)

10. Portfolio Contribution of Hedge Fund

10.1 Performance Contribution to a 60/40 Portfolio

Hedge funds inclusion to a traditional portfolio not only enhances risk-adjusted return but also diversifies portfolio risk.

Consider a traditional investment portfolio containing 60% stocks, 40% bonds. Adding a 20% allocation of a hedge fund strategy group to the portfolio (with new portfolio allocation 48% stocks, 32% bonds and 20% hedge funds) typically:

- decreases total portfolio standard deviation
- increases Sharpe & Sortino ratios
- decreases maximum drawdown in the combined portfolios (approx. one third)

Reference: See Exhibit 19-20 for Performance and Risk of 48/32/20 Portfolio, CFA Institute's Curriculum Reading 26.

10.2 Risk Metrics

The following few examples demonstrate how various hedge fund strategies behave when combined with traditional portfolio.

The study has shown that the allocation to the following hedge fund strategies have provided substantial **risk-reduction benefits** and **enhanced risk-adjusted returns**: - equity market neutral - systematic futures - FoF macro-systematic	Allocation to the following hedge fund strategies have shown relatively **higher standard deviation**: - event-driven and distressed securities (due to binary, long-biased investing) - relative-value and convertible arbitrage securities (due to liquidity and leverage issues in market stress)

Drawdown: Difference between portfolio's high-water mark point (highest value) and any subsequent low point till new high-water mark is attained.

Maximum Drawdown: the largest difference between a portfolio's high-water mark and subsequent low point.

The study has shown that the hedge fund strategies that formed the **smallest maximum drawdown** are: o Opportunistic strategies such as global macro and managed futures o Systematic futures o Merger arbitrage Conditional risk model suggests that during crises these strategies mitigate portfolio risks as these strategies: o are less exposed to credit or equity risk o have lowest serial correlation (better liquidity)	The following hedge fund strategies when combined with traditional hedge funds exhibit **high maximum drawdown**: o L/S equity strategies o Event-driven and distressed securities strategies o Relative-value and convertible arbitrage strategies Conditional risk model implies that these strategies tend to have equity risk and their credit risk rises during crises

Practice: Example 15 Curriculum, Reading 26.

Practice: End of Chapter Questions CFA Institute's Curriculum, Reading 26 + FinQuiz Questions and Item sets.

2. THE ROLE OF ALTERNATIVE INVESTMENTS IN A MULTI-ASSET PORTFOLIO

Benefits of alternative assets to a traditional portfolio:

- Improved risk-adjusted expected return due to:
  - lower risk (greater diversification benefits)
  - higher returns
- Real assets can provide inflation protection
- Venture capital investments (private equity) provide a substantial return premium over equities to compensate for illiquidity risk and heightened operational complexity
- Hedge funds vehicles span from diversifiers (risk-reducers) to return enhancers.

Roles of asset classes in a portfolio include (CSIR):

- Capital growth: Can be a requirement for portfolios with long-time horizons and high return targets.
  - Suitable asset class for this role: public and private equity
- Safety: Certain asset classes may serve as a safe haven for investors
  - Suitable asset class for this role: Government bonds or gold
- Income generation: Asset classes in this category generate a reasonably steady cash flow stream for investors.
  - Suitable asset class for this role: Fixed income or real estate
- Risk diversification: Equity-oriented portfolios may seek to diversify dominant equity risks or fixed-income portfolio holders may seek to diversify pure yield curve risk.
  - Suitable asset class for this role: Real estate and several hedge fund strategies

Refer to Exhibit 3, for a detailed illustration of how various asset classes fulfill their roles in a multi-asset class portfolio.

2.1 The Role of Private Equity in a Multi-Asset Portfolio

Private equity investments:

- are viewed as return enhancers in a traditional portfolio due to their illiquidity premium
- have limited diversification benefits due to strong link between fundamentals of private and public companies
- have volatility which is not directly observable because holdings are not publicly traded

For asset allocation purposes, private equity volatility is estimated using a public equity proxy with an adjustment to better represent the nature of the private equity program.

2.2 The Role of Hedge Funds in a Multi-Asset Portfolio

- Hedge funds span from being risk reducers to return enhancers
- Types of hedge fund strategies include:
  - Long/short equity strategies: deliver equity-like returns with less than full exposure to the equity premium but an additional source of return which comes from shorting individual stocks
  - Short-biased equity strategies: expected to reduce portfolio's overall equity beta while producing alpha
  - Arbitrage and event-driven strategies: Exploit inefficiencies in public markets while exhibiting low to no correlation with traditional asset classes. Volatility in this strategy is non-symmetrical
  - Opportunistic strategies (global macro and managed futures): volatile strategies which provide exposures not otherwise readily accessible in traditional stock and bond strategies

Note: Most hedge fund strategies involve short volatility risk

2.3 Role of Real Assets in a Multi-Asset Portfolio

Real assets are highly correlated with inflation or with a sub-component of inflation. Types of real assets include:

- Timber investments:
  - Provide growth and inflation-hedging properties in a multi-asset portfolio
    - Growth is provided through the biological growth of trees and appreciation of underlying land value.
    - Inflation-hedging characteristics are derived from the unique nature in which asset value is realized
- Commodities investments: Include the following categories:
  - Metals
  - Energy
  - Livestock and meat
  - Agricultural

Commodity investments can be direct or indirect (via derivatives); the latter is most common. Direct commodity investing entails storage and insurance costs.

Commodities serve as a hedge against inflation as well as a differentiated source of alpha. Gold and other precious metals are directly owned because they are thought to be a good store of value when currency is depreciating.

- Farmland investing: Includes two approaches:

  Approach 1:
  Investors owns land and provides farmer salary over long time-horizon. Strategy is exposed to regulatory risk & natural disasters. Investor retains commodity risk and execution risk.

  Approach 2:
  Investor owns land but leases it to farmer; the latter retains risk for commodity prices and execution. More like a core commercial real estate investing.

2.4 The Role of Commercial Real Estate in a Multi-Asset Portfolio

Real estate investing of commercial properties includes:

- development;
- acquisition;
- management; and
- disposition of retail, office, industrial, housing (including apartments), and hotels.

Investment strategies of commercial real estate include:

- Core: ownership of fully occupied properties and collecting rents.
- Opportunistic: Ground-up property development (land acquisition, construction and sale).
- Purchase of distressed assets with the intent of rehabilitating them

Note:

- Real estate investments provide protection against inflation as rents and/or values of buildings may increase with inflation.
- The private real estate market is significantly larger than the public market.
- Building a diversified private commercial real estate program can be challenging for all but the sophisticated investors

2.5 The Role of Private Credit in a Multi-Asset Portfolio

Private credit involves the ownership of fixed-income assets and includes direct lending and distressed investing.

Direct-lending

- Direct-lending assets are income-producing, and the asset owner assumes any default or recovery risks. Credit profile of assets:
  - High-quality, direct lending assets behave like investment-grade bonds
  - Low-quality, direct lending assets behave like high-yield bonds
- Direct-lending assets have no secondary market and is the least liquid debt strategy
- Direct-lending funds provide capital to individuals and small businesses that cannot access more traditional lending channels
- Loans may be secured or unsecured
- Investors can gain access to a highly risky but high-yielding debt market segment which is not available via the traditional public markets.

Distressed investment:

- Have a more equity-like profile with expected return derived from a company's assets relative to its debt.
- Investors purchase assets of a company that is under stress at a significant discount
- Investors often take an active role in legal restructuring of bankruptcy process of these companies
- Investments take the form of either debt or equity
- Distressed investments (even if they are bonds) have low sensitivity to traditional bond risks because the company's idiosyncratic risks dominates all risks

Note:

- Illiquidity risk is high with both strategies

3. DIVERSIFYING EQUITY RISK

3.1 Volatility Reduction over the Short Time Horizon

In order to determine whether alternative assets are better volatility reducers compared to bonds in an equity-dominated portfolio, reported returns need to be unsmoothed for proper risk estimation.

Risks may be understated for alternative assets due to the following reasons:

- For private investments reported returns may be calculated using appraisal-based valuations that may result in low volatility and correlation estimates
- Survivorship bias and back-fill bias in hedge fund databases can lead to an understatement of downside risk
- Hedge fund index combines many hedge fund managers whose returns exhibit low correlation

Based on observed market data from the period 1997-2017, the following observations were evident:

- Most alternative asset classes had a positive, but less than perfect correlation with equities
- Hedge funds have demonstrated a fairly strong positive correlation with public equities
- Government bonds have demonstrated a fairly negative correlation of moderate strength with public equities due to the tendency for government bonds to serve as a risk haven during flight to quality scenarios.

Note: Distinction between correlation and beta:

- Correlation coefficient quantifies the strength of a linear relationship between two variables playing an important role in portfolio diversification. The lower the correlation coefficient, the greater the asset's diversification power
- Beta measures the response of an asset to a unit change in the reference index
- Positive growth surprises are positive for equities (better earnings outlook) and negative for bonds (potential central bank rate increases)

3.2 Risk of Not Meeting the Investment Goals over the Long Time Horizon

An investment portfolio's objective may go beyond minimizing volatility and include achieving a specific return target such as a real return plus inflation.

If bond's yields are low during any particular period, the likelihood of a portfolio meeting the investment objective is delayed because the portfolio value will grow more slowly. In such an event, a greater reduction to government bonds will reduce portfolio volatility as well as expected return and the probability of realizing a return over a particular time period.

Example: Consider two portfolios: A) comprises 70% public equities and 30% private equities and B) comprises 70% public equities and 30% government bonds. In this scenario:

- Probability of portfolio A meeting return objective rises with time while probability of portfolio B meeting return objective declines with time
- Portfolio B has lower expected return and volatility compared to A
- As time horizon lengthens, gap between cumulative return target and expected return widens the range of possible portfolio outcomes
- Therefore, likelihood of low-returning portfolio catching up to the target declines

Note:

- Bonds have been a more effective volatility mitigator compared to alternatives over short-time horizons
- Over long horizons, a heavy allocation to bonds will reduce the probability of meeting investment goal
- Volatility is the dimension of risk which addresses interim fluctuations in portfolio return
- Probability of achieving a return target is a dimension of risk that takes on greater importance as we expand the time horizon.

Practice: Example 1 Curriculum, Reading 27.

4. PERSPECTIVES ON THE INVESTMENT OPPORTUNITY SET

Traditional approaches to asset allocation can group and classify alternative assets along several dimensions such as with respect to: 1) liquidity of the asset class and 2) asset behavior under various economic conditions.

4.1.1) A Liquidity-Based Asset Approach to Defining the Opportunity Set

Liquidity differences among alternative asset classes:

- REITS and commodity futures are highly liquid and can be easily traded in public markets
- Private equity investments are high illiquid and require a long-term commitment of more than 10 years
- Private credit funds are more liquid and require a shorter time commitment that private equity
- For a categorization of the liquidity profile of broad alterative asset classes, refer to Reading 27, Exhibit 10, Page 103

Note: The long-time horizon and lack of liquidity in many alternative asset classes makes it difficult to characterize their risk characteristics for an asset allocation exercise.

4.1.2) An Approach Based on Expected Performance under Distinct Macroeconomic Regimes

Investors may categorize economic assets based on how they are expected to behave under different macroeconomic environments and assign roles to them:

- Capital growth assets: expected to benefit from healthy economic growth. Private and public equities are included here
- Inflation-hedging assets: expected to outperform other asset classes when inflation expectations rise or actual inflation exceeds expectations. Real-assets such as real estate, commodities, natural resources and inflation-linked bonds are included here
- Deflation-hedging assets: would be expected to outperform most of the other asset classes when the economy slows and inflation becomes very low or negative.

Refer to Reading 27, Exhibit 11 for an illustration of how alternative assets can be grouped by the macroeconomic environment in which they are expected to outperform.

By understanding how asset classes behave under distinct macroeconomic regimes, investors can tailor an allocation to align with their fundamental goals or mitigate fundamental risks.

An asset allocation which includes a combination of growth asset classes with either inflation-hedging or deflation-hedging asset classes can make the asset allocation more resilient to changing economic and market conditions.

4.2 Risk-Based Approaches to Asset Classification

Risk factor allocation of alternative investments can include the following risk factors:

- Equity market return: May be referred to as best market proxy for growth which represents the general direction of global equity markets
- Size: Excess return of small-cap equities over large-cap equities
- Value: excess return of value versus growth stocks (negative factor sensitivity = growth bias
- Liquidity: The Pastor-Stambaugh liquidity factor – a market wide liquidity measure based on the excess returns of stocks with large sensitivity to changes in aggregate liquidity (less liquid stocks) versus stocks with less sensitivity to changing liquidity (more liquid stocks)
- Duration: sensitivity to changes in 10-year government bond yield
- Inflation: sensitivity to changes in 10-year breakeven inflation changes obtained from the inflation-linked bond markets.
- Credit spread: sensitivity to changes in high-yield spread
- Currency: sensitivity to changes in the domestic currency versus a basket of foreign currencies.

In a factor-based asset allocation framework:

- Factors represent systematic risks embedded in the selected asset classes and investment strategies.
- Risk factors will fully or almost fully explain the behavior embedded in broad, passive traditional public asset classes.
- Unexplained risks are attributed to appraisal-based valuation in real-estate, idiosyncratic risks in the portfolio companies of private equity funds, idiosyncratic risks in hedge funds results from active management

Benefits of risk-factor-based approaches:

- Extending the risk factor framework to alternative asset classes allows every asset class to be described using the framework

- Allows investors to understand sources of investment risk
- Investors can allocate capital and risk in a multi-dimensional way using this framework

Limitations of risk-factor-based approaches:

- Small set of factors is insufficient to describe historical return stream of alternative asset classes
- Increasing the number of risk factors will improve the goodness of fit but too many factors can make the risk factor-based asset allocation framework difficult to handle and interpret
- Certain risk factor sensitivities can be quite volatile making a point-in-time factor-based definition of an asset class a poor descriptor of its expected behavior.

Practice: Example 2 Curriculum, Reading 27.

Refer to Reading 27, Section 4.2.1 for an illustration of how a risk-based approach may enhance traditional asset allocation.

4.3 Comparing Risk-Based and Traditional Approaches

Strengths of traditional approaches:

- *Easy to communicate*: Role of asset classes is easily understood by decision-makers. Scenario analyses of expected/historical behavior of asset classes under different macroeconomic conditions can give insight into portfolio's expected risk and performance.
- *Relevance for liquidity management and operational considerations*: Helps identify asset classes which have similar risk factor exposure but are different from a liquidity management perspective. Traditional categorization by asset classes will help identify mandates of investment managers.

Main limitations of traditional approaches:

- *Over-estimation of portfolio diversification*: There is no proper framework for assessing risk which gives investors a false sense of diversification
- *Obscured primary drivers of risk*: Investments with different risk characteristics may be clubbed under the same category

Key benefits of risk-based approaches:

- *Common risk factor identification:* Investors are able to identify common risk factors across all investments
- *Integrated risk framework*: Investors can quantify portfolio risks reliably by building an integrated risk management framework

Key limitations of risk-based approaches:

- *Sensitivity to the historical look-back period:* Empirical risk-factor exposure estimations may be sensitive to the historical sample
- *Implementation hurdles:* Converting strategic risk-factor targets to actual investment mandates requires consideration of liquidity planning, time and effort for manager selection, and rebalancing policy

5. INVESTMENT CONSIDERATIONS RELEVANT TO THE DECISION TO INVEST IN ALTERNATIVES

Other than risk, return, and correlation characteristics, the primary factors to consider when investing in alternatives to consider are outlined in sections 5.1-5.5 below.

5.1 Risk Considerations

Mean variance optimization (MVO) techniques cannot be used to effectively characterize the risk and returns of alternatives because it relies on standard deviation which is a poor measure of risk for alternatives which may be:

- illiquid;
- characterized by returns which are not normally distributed; and
- associated with subjective valuations

It is rare for an asset allocation with significant exposures to alternative investments to mirror the modelled asset allocation which is based on the assumption that the portfolio's allocation to an asset class is always fully invested. Investors must monitor the program's aggregate exposures to ensure that risks are in line with the strategic asset allocation.

Examples of scenarios where it is difficult to model an allocation to alternative investments:

A. In the case of private alternative strategies, it could take several years for capital to be invested and where capital is returned to the investor as investments are sold
B. Short-only strategy: A short-biased fund provides strong diversification benefits by lowers a portfolio's aggregate exposure to the equity risk factor. This fund will have a risk profile which differs considerably from a long-only equity fund.
C. Option payouts: Some hedge fund strategies structure their trades as call options. It may be difficult to monitor the return profile of the fund using fund's historical standard deviation or other risk metric

5.2 Return Expectations

Due to their idiosyncratic risks There is no single approach for estimating returns of alternative investments. Approaches include:

- Buildings block approach: This includes the following steps:
  - Begin with the risk-free rate
  - Estimate the return associated with the factor exposures relevant to asset classes
  - Apply an assumption for manger alpha
  - Deduct management and incentive fees and taxes
  - Note: A portfolio which currently contains alternative investments can be characterized by their known exposures rather than through generic exposures which are not representative of the program's objectives for the asset class exposure

5.3 Investment Vehicle

- Most alternative investments are implemented through a private (limited) partnership which is controlled by the general partner, the organization, and individuals that manage the investments.
- Investors are limited partners (LPs) who are not directly involved in fund operations.
- Larger investors may directly in a manager's fund or through a fund of funds (a private partnership which invests in multiple underlying partnerships).
- Larger investors may consider making co-investments alongside a manager into a portfolio company or they may make investments of their own

Types of hedge fund vehicles across the world:

- In the US, hedge funds will employ two structures:
  - A limited partnership
  - Offshore corporation or feeder firm which feeds into an underlying limited partnership
- European hedge funds register their vehicles as a public limited company, a partnership limited by shares, or a special limited partnership

Benefits, drawbacks, and structure of mutual fund vehicles include:

Direct investment in a limited partnership: An investor with the necessary scale and expertise can purchase limited partnership interests directly from the GP who typically invests a portion of their capital alongside LPs. Each limited partnership follows its own investment strategy and LPs must invest in multiple partnerships to achieve diversification.

Funds of funds (FOFs): This vehicle pools capital of investors who otherwise may not have the scale and investment/operational expertise to access, evaluate, and develop a diversified alternative investment program.

- FOF manager specializes in a certain alternative strategy and invests in several or multiple underlying funds.
- FOF manager is responsible for sourcing, conducting due diligence on and monitoring the underlying managers
- An FOF simplifies an investor's accounting and reporting but they are charged fees
- Investors in a FOF lose flexibility in the ability to customize exposures

SMAs/fund of one: SMAs represent funds with very high minimum investment requirements offered to investors demanding more favorable investment terms and conditions than offered to smaller investors. However, they pose greater operational challenges compared to other investment vehicles.

Fund of one: A limited partnership with a single client which is created when an SMA is impractical. Easier to implement compared to SMAs.

Both SMAs and fund of ones do not provide investors the opportunity to align interests which arises when the GP invests capital alongside that of LPs. GPs may favor the latter funds over SMAs and fund of ones when allocating capital-constrained investment opportunities.

Mutual funds/UCITS/publicly traded funds: A number of open-ended mutual funds and UCITS seek to replicate

alternative investment strategies and provide access to smaller investors who otherwise cannot invest in the strategies directly.

- These vehicles are regulated which limits the manager's ability to implement the investment strategy offered via his/her primary investment vehicle.
  - For example: Mutual funds offer daily liquidity and will be an unsuitable investment vehicle for a distressed or activist fund where the time horizon to realize a return is very short.

5.4 Liquidity

Unlike traditional assets and vehicles used to gain access to them, alternative asset classes and their vehicles expose their investors to a degree of liquidity risk.

5.4.1) Liquidity Risks Associated with the Investment Vehicle

Private placement memorandum (PPM) details the subscription and redemption features of the partnership.

Liquidity provisions differ across asset classes but are similar within asset classes. SMA liquidity provisions may be negotiated directly with the manager. Refer to Exhibit 17 for typical liquidity provisions of alternative investment vehicles.

Secondary markets: Secondary market for many alternatives funds exists but is small. Brokers match buyers and sellers of limited partnership interests and secondary funds may purchase limited partnership interest from the original investor. GP must approve such transactions which occur at significant discount to net asset value (NAV) of the fund.

Understanding a drawdown structure: Alternative investment structures (private equity/credit, private real estate, and real asset funds call investors' capital in stages as fund investments are identified. The investment period is usually 3-5 years from initial capital call and is specified in the PPM.

Highly unpredictable liquidity profile of call down/drawdown funds makes it necessary for the investor to plan for multiple contingencies. Investors could be above or below their target allocations as a result of uncertain timings of capital calls or drawdowns.

At all times, investors should ensure they have adequate liquidity to meet their capital calls otherwise they may need to forfeit their entire investment in the fund and may face penalties.

5.4.2) Liquidity Risks Associated with the Underlying Investments

The investor must be aware of any mismatch between fund terms and liquidity profile of the underlying instruments held by the fund. This issue normally arises in hedge funds as private equity funds do not provide interim liquidity. Issues an investor may encounter include:

Equity-oriented hedge funds: Majority of assets in this fund category are liquid, marketable securities. Short positions may be less liquid than long positions and funds making use of short selling are less liquid. Illiquid securities may be designated as being held in a 'side pocket' which are not subject to the fund's general liquidity terms.

Note: It is important to evaluate liquidity challenges inherent in underlying holdings including side pockets to evaluate overall portfolio liquidity profile.

Event-driven hedge funds: These fund strategies have longer investment horizons.

For example: underlying investments in a merger arbitrage strategy are liquid but returns are realized in chunks. Liquidity terms must provide enough flexibility to execute the investment thesis.

Relative value hedge funds: Several of these funds will invest in various forms of credit, convertibles, derivatives, or equities that have limited or uncertain liquidity characteristics. Funds may include provisions in the documents to restrict redemptions under certain scenarios so that managers are not forced to sell the more liquid securities rather than less liquid securities and leaving remaining investors in the fund holding a sub-optimally illiquid portfolio. Managed futures have more flexible terms allowing investors to make significant redemption requests to meet their cash needs.

Leverage: The fund's use of leverage and its agreement with counterparties providing the leverage can affect the alignment between fund terms and the investment strategy. A levered fund will provide lenders with the first claim to its assets which is superior to those of LPs. Most lenders can make a margin call with two days' notice and this usually happens when markets are stressed resulting in LPs' liquidity evaporating as the most liquid positions in the portfolio are sold to meet margin calls.

5.5 Fees and Expenses

Investments in alternative assets have higher fees and expenses:

- Management fees are typically in the range 0.5% to 2.5% of assets
- Incentive fees are 10% to 20% of returns

Fees and expenses can have a larger difference on the impact between gross and net of fee returns for call-down-type structures such as private equity funds where management fee is charged on committed capital and not invested capital. If manager is slow to deploy capital, there can be a pronounced J-curve effect.

Normal fund expenses for alternative assets include:

- Legal
- Custodial
- Audit
- Administration and
- Accounting fees

Smaller funds will have greater normal fund expenses than larger funds as the latter can spread costs over the larger asset base and pass-through to investors is likely to be in the range of 0.50% - 0.2%. Funds may pass asset acquisition costs, due diligence costs, and any brokerage commissions paid to investors.

2.6 Tax Considerations

The tax consequences of a tax inefficient strategy can significantly erode the benefits of an alternative investment strategy due to substantial short-term gains or taxable income. This arises with hedge fund strategies in which tax-exempt investors dominate and the fund is insensitive to tax efficiency.

Vehicle selection is key to mitigate potential tax consequences. Examples of tax considerations:

- Asian investors may use offshore vehicles that feed into US strategies in order to mitigate US tax withholding
- US tax code has provisions favoring timber, real estate and energy investments
- Some alternative investment strategies can generate unrelated business income tax (UBIT) – which arises when a US tax exempt organization engages in activities that are not related to the tax-exempt purpose of that organization. Tax-exempt investors need to check if their fund generates UBIT
- The taxable investor faces additional costs and operational hurdles because of the more complex tax filings. If annual income or income derived from investments is misestimated, the investor may face tax penalties.

2.7 Other Considerations:

Key options large investors must consider when implementing an in-house alternative investment program:

- What is the likelihood an investor can identify and gain access to the top-tier management in the investment strategy?

  Top-tier management and differentiated strategies are resource-constrained. Top-tier managers may recognize this by limiting the amount of investors/capital in their fund making access to them difficult for investors.

- What is the likelihood an investor will be granted access for conducting due diligence?

  It is important for investors to have access to key decision makers within an organization in order to stay informed on changes in conditions which warrant a redemption.

- What skills and resources does the investor have in-house to evaluate and monitor an alternative investment program?

  This question is evaluated by considering:
  - cost tradeoffs – cost is the overriding factor in the decision to build a program in-house or buy an existing off-the-shelf product. Costs of managing an alternatives investment program in-house can exceed that of a traditional investment program but may be afforded by a large organization.
  - investment expertise of in-house staff – investors must seek to build an in-house team with expertise to evaluate securities and deals as well as provide necessary infrastructure to support such teams.
  - the desire to tailor an investment program to specific investor wants and needs – Investors may have a difficult time finding a FOFs or consultant which meets their specific investment requirements and may need to build an in-house team instead
  - the degree of control – Investors with a desire for control over the implementation of the investment program should implement an in-house program

Practice: Example 3 & 4 Curriculum, Reading 27.

6. SUITABILITY CONSIDERATIONS

Investor characteristics which are important to a successful alternative investment program are described in Sections 6.1 – 6.4 below.

6.1 Investment Horizon

- Investors with time horizons of less than 15 years should avoid investments in private real estate, private real assets, and private equity funds
- Alternative investment programs have greater success if the investor adopts a long-horizon approach
- Alternative investment programs in private markets may take 5-7 years to fully develop and another 10-12 years to fully unwind
- Hedge fund strategies focusing on public equities or managed futures have shorter lock-ups (a few months to none at all)
- Purchase and sale of limited partnership interests on the secondary markets can shorten entry/exit phases of the process

6.2 Expertise

- Successful alternative investment programs require that investors understand the risks entailed and the market environment that drive the success and failure of each of the strategies
- Understanding breadth of alternative investment opportunities and complexity of strategies within each alternative class requires a high level of investment expertise.
- A pension fund which doesn't have full-time investment staff or an individual who does not have the resources to hire an advisor with a dedicated alternatives investment team will not have requisite investment expertise.
- An investor whose investment philosophy is that markets are fundamentally efficient may not be able to fully embrace an alternative investment program which is based on active management.

6.3 Governance

- Robust governance framework is one which meets the needs of investors & is necessary to develop a successful alternative investment program.
- Characteristics of a strong governance framework include:
  - Long- & short-term objectives of the investment program are well-articulated
  - Decision rights and responsibilities are allocated to those persons with knowledge, capacity, and time required to critically evaluate possible courses of action
  - Formal investment policy has been adopted to govern day-to-day operations of the investment program
  - A reporting framework is in place to monitor the program's progress toward the agreed-on goals and objectives

6.4 Transparency

- In real estate, private equity, and real asset funds, the investor is putting forward capital to purchase assets in a portfolio which are not identified as of that date.
- Hedge fund managers are reluctant to disclose the full portfolio to investors on an ongoing basis.
- No legal requirements mandate the timing, frequency, and details of fund reporting for private investment partnerships.
- There is no similarity among risk exposure reports provided by hedge fund managers.
- A typical hedge fund performance report, usually released quarterly, may detail performance, top 10 holdings, and general commentary on capital markets as well as some factors that influenced fund performance.
- Clients with separately managed accounts have access to portfolio holdings and may be able to produce their own risk reporting with common set of risk metrics
- Private equity funds provide more transparency but investor must gather additional information to fully understand portfolio's risk exposures and progress towards meeting expectations
- Private equity managers provide abbreviated quarterly reports with a full report available after the annual fund audit
- Reporting on private real estate funds consists of a quarterly report which are issued with a one-quarter lag to allow sufficient time to update property valuations

- Annual reports may not be available until the second quarter following year end and require third-party appraisals.
- Investors should ensure a fund is using independent administrators to calculate the fund and LP's NAV
    - Hedge funds use independent administrators but funds investing in illiquid strategies (private equity/credit, real estate/natural resources); latter have wide discretion in asset valuation
- Alternative investment managers should engage an audit firm to perform an annual audit of the firm and the report should be made available to LPs.

Practice: Example 5 Curriculum, Reading 27.

7. SUITABILITY CONSIDERATIONS

Three approaches to determining desired allocation to alternative asset classes include:

1. Monte Carlo simulation
2. Optimization techniques
3. Risk factor-based approaches

These techniques complement each other.

7.1 Statistical Properties and Challenges of Asset Returns

Analytical challenges presented by alternative assets include:

1. Appraisal-based valuations used in private alternative valuations lead to stale and/or artificially smoothed returns. Volatility measures based on these smoothed returns will underestimate actual risks
2. Skewness and fat tails are more pronounced in alternative investment strategies compared to traditional investment strategies. Leverage, sensitivity to the disappearance of liquidity, and the asymmetric nature of performance fees contribute to the skewness and excess kurtosis among alternative investments.

7.1.1) Stale pricing and Unsmoothing

Appraisal-based valuation is common in private equity and private real estate. The valuation parameter assumptions in the process change slowly and give the assumption that illiquid assets' performance is less volatile than that of public marketable assets with similar fundamental characteristics.

This issue affects hedge funds in which the manager invests in illiquid or less liquid assets whose valuations are updated infrequently or are using models with static valuation assumptions.

How to detect smoothed returns? Test the return stream for serial correlation. If serial correlation is statistically significant, returns are smoothed.

Note:

- The higher the serial correlation in the reported return series, the larger the difference between the volatility based on smoothed and reported (smoothed) return data.
- The serial correlation of public marketable asset classes is generally low.

7.1.2) *Skewness and Fat Tails*

Skewness and excess kurtosis, or so-called fat tails in observed return distributions may lead to underestimated downside risk measures in the case of both traditional and alternative asset classes.

Non-normal returns can be more severe in private alternative asset classes and certain hedge funds compared to most traditional asset classes.

Important terms:

- Positive skewness: indicates smaller downside risk potential
- Negative skewness: indicates greater downside risk potential
- Excess kurtosis: points towards greater downside risk than would be apparent from numbers calculated using normally distributed returns

Actual (observed) conditional value-at-risk (CVaR) estimates typically exceed the normal distribution-based CVaR figures when kurtosis is high and skewness is negative.

However, skewness and excess kurtosis cannot alone explain the relative difference between observed CVaR and normal CVaR, higher kurtosis or more

negative skewness usually increases the severity of tail risk.

With the exception of private equity, for which there is a lack of data, analysts can incorporate non-normality into their analyses using different statistical and mathematical models:

- Time-varying volatility models which assumes volatility is not constant but dynamic
- Regime-switching models capture return, volatility and correlation characteristics in different market environments
- Extreme value and other fat-tailed distributions can be used when the analyst would like to focus on behavior in tails.

A sound asset allocation exercise is one which focuses on:

- Unsmoothing asset class return series if autocorrelation is significant
- Determine whether it is reasonable to use assumption of normally distributed returns in which case mean-variance optimization is suitable
- Allows for using an optimization approach which takes tail risk into account if time series exhibits fat tails and skewness and if potential downside risk exceeds the levels that would be observed in a normal distribution.

7.2 Monte Carlo Simulation

Monte Carlo is useful in asset allocation of alternative investments. Two applications of the approach are outlined in the following sections below:

7.2.1) Simulating Skewed and Fat-Tailed Financial Variables

An intuitive way to incorporate non-normal returns into the analysis is to assume there are two (or more) states of the world which individually can be described using a normal distribution but the combination of the two distributions will not be normally distributed.

Illustration: Assume analyst wants to capture skewness and fat tails in a simulation framework under two different regimes – 1) a quiet period and a 2) high volatility state. The analyst will rely on the following normally distributed parameters in the two regimes:

- Means
- Covariances
- Estimated probability of the regime

The mix of high and low volatility normal distributions would lead to a skewed and fat-tailed distribution of asset class return or risk-factor changes.

Alternatively, asset classes can be built using risk factors in which case the non-normal return distributions of the risk factors would be overlaid on the relevant asset class returns.

7.2.2) Simulation for Long-term Horizon Risk Assessment

For applying the Monte Carlo simulation in the context of asset allocation over longer time periods, consider a case of simulating asset class returns in quarterly steps over a 10-year horizon. The following steps are followed:

- Estimate volatilities, correlations, and other parameters of the time series model based on 20 years of unsmoothed asset class returns
- Return expectations for asset classes are based on forward-looking estimates
- Return expectations assume passive investments in the specific asset class. Hedge fund investments are not included in this assumption
- Return expectations are assumed to be net of fees
- Return expectations should be reflective of current market conditions

Refer to CFA Institute's Curriculum, Section 6.2.2 for an illustration of the probabilities of different portfolio combinations meeting the investment objective of a university endowment fund.

7.3 Portfolio Optimization

7.3.1) Mean-Variance Optimization without and with Constraints

Risk of mean-variance optimization: Overallocation to alternative, mainly illiquid, asset classes given their higher expected returns and understated risks.

Solution to the risk issue? Impose maximum and minimum constraints on asset classes.

Negative consequence of the solution? Refer to Exhibits 30 and 31 to evaluate the impact of constrained and unconstrained mean-variance optimization on resulting mean-variance efficient frontiers. We can conclude the following:

- It is common to see unconstrained portfolio allocations concentrated in a small number of asset classes. Constrained allocations may appear to be less concentrated, more diversified.
- It is not unusual to see the constrained efficient frontier running below the unconstrained efficient frontier when the optimization is constrained.

- One consideration for investors is that constrained optimization should not be accepted without further scrutiny as similar volatility and expected return profiles can be achieved with a wide variety of asset allocations.

7.3.2) Mean-CVaR Optimization

An investor concerned with minimizing the downside risk of a proposed asset allocation should focus on reducing CVaR rather than volatility relative to a return target.

CVaR is especially useful when portfolio contains assets classes and investment strategies with negative skewness and long tails.

Minimizing CVaR with a return target is much more complex that a risk objective with volatility; a large number of historical or simulated return scenarios are required to incorporate tail risk.
Refer to Reading 27, Exhibit 32, Panels A and B for a comparison of the portfolio allocations generated by mean-variance and mean-CVaR optimizations.

In short, the mean-CVaR optimization will not make an allocation to an asset class with high CVaR. The mean-CVaR optimization produces an asset allocation with lower tail risk compared to one generated using mean-variance optimization.

Practice: Example 6 Curriculum, Reading 27.

7.4 Risk Factor-Based Optimization

This focuses on conducting asset allocation by first allocating the overall risk budget across the main risk factors. Furthermore, the investor here may focus on return expectations and correlations of fundamental risk factors as opposed to return expectations for asset classes.

Next, factor returns and historical factor volatilities and correlations are used to optimize risk-factor exposure by minimizing factor-implied risk. This may lead to the allocation to a pair of factors (a positive factor exposure) which may generate negative factor returns but otherwise have a negative correlation; i.e. diversification potential is being sought here.

Limitations of a risk-factor approach:

- Unlike generally accepted asset class definitions, risk factors may be defined differently from investor-to-investor.
- Correlations among risk factors, like correlations among asset classes, is subject to dramatic shifts in changing market conditions
- Factor sensitivities need to be tested to determine if portfolios deliver intended factor exposures and not undesired factor returns.

Practice: Example 7 Curriculum, Reading 27.

8. LIQUIDITY PLANNING

This section focuses on multi-year horizon liquidity planning for private investments.

Managing portfolios with alternative investments requires managing liquidity risk. This requires that sufficient liquidity is available to meet interim obligations or goals.

Private investments (private equity, private real estate, private real assets, and private credit) represent the most illiquid components of an investment portfolio. Private investments require a long-term commitment comprising the investment period and period of receiving distributions. Also, call-down structure of a private equity fund must be considered.

Challenges with private equity liquidity planning with primary considerations are outlined below.

8.1 Achieving and Maintaining the Strategic Asset Allocation

An investor should strategically plan annual commitments to achieve and maintain long-term target asset allocation.

Example of a liquidity forecasting model for private investment programs (Takahashi and Alexander, 2001):
Assume, Capital Commitment (CC) = £100 million; Contractual Term (L) = 12 years; Rate of Contribution (RC) in Year 1 = 25%; RC in each of the remaining years = 50%

Step 1:
Determine Capital Contribution to the fund (C):

RC year-wise:
Year 1: £100 million × 25% = £25 million
Year 2: (£100 million – £25 million) × 50% = £37.5 million

Year 3: (£100 million – £25 million – £37.5 million) = £18.75 million

$C_t = RC_t \times (CC - PIC_t)$
where PIC = Paid-in Capital

Step 2:
Estimate periodic distributions (D) paid to investors

D is a function of Net Asset Value (NAV). NAV rises with:

- Additional capital contributions
- Appreciation in underlying investments

NAV declines as distributions are made.

First step in Step 2 is to estimate pattern of distributions, annual rate of distribution. Then analyst determines annual amount distributed using following formula:

$D_t = RD_t[NAV_{t-1} \times (1 + G)]$

$NAV_t = [NAV_{t-1} \times (1 + G)] + C_t - D_t$

Distributions = Rate of distribution at time t × [NAV × (1 + Growth Rate)]

NAV at time 1 = prior NAV × (1 + Growth Rate) + Capital Contribution – Distributions

Compared to a scenario where RD is high in initial years, if RD is low in initial years and starts increasing in the second half of fund's life:

- NAV will grow higher in the initial years
- Annual capital contributions will not be affected
- Cumulative net cash flow would stay in the negative zone for a longer period of time

Refer to CFA Institute's Curriculum, Exhibits 39-41 for a graphical representation of above points.

Practice: Example 8 Curriculum, Reading 27.

It is important for an investor to determine the size of annual capital commitment in order to reach target asset allocation of an asset class over the coming years.

To avoid concentrating private equity investment to the initial year or years, a good practice would be to spread commitments over multiple years leading to a stable NAV size over time.

Cash flow and pacing model enable better management of portfolio, set realistic annual commitment targets, and manage portfolio beta in aggregate. Investors should evaluate how different parameter settings and liquidity stress scenarios could impact their investment portfolios.

8.2 Managing the Capital Calls

Investors make an up-front commitment of a certain dollar amount to a private equity fund which is called (or paid in) over a period of three to four years.

GP may never call the full capital committed while LPs are obligated to pay the capital call in accordance with the terms agreed to with the GP, often within 30 days of receiving call notification.

Investors should have a strategy for maintaining the asset allocation while waiting for the capital to become fully invested. Capital pending investment in a private equity fund is often invested in public equities as a proxy for private equities. Similarly:

- High yield may be considered a proxy for pending private credit investments
- REITS a proxy for pending private real estate investments
- Energy stocks or commodity futures as a proxy for real asset investments

8.3 Preparing for the Unexpected

Liquidity planning models are based on assumptions and good practice would be to verify estimates with a sample of representative private funds' historical experience. In addition, realized future cash flows may differ from what the model predicted based on assumed parameters and so it is necessary to run the analysis using different set of assumptions and parameters.

Stress testing the asset allocation should also include the following scenarios:

- faster capital calls and lower distribution rates and the resulting assumptions
- contingencies which include the impact of liquidating a fund when the investor's public market is performing poorly
    - Investors may find themselves their asset allocation differs from the target or are unable to meet capital calls intended to be funded from distributions

Practice: Example 9 Curriculum, Reading 27.

9. MONITORING THE INVESTMENT PROGRAM

9.1 Overall Investment Program Monitoring

Investors should monitor the progress of an alternative investment program towards meeting pre-defined investment objectives. Investors should monitor market developments to ensure the reason to invest continues to make sense.

An investor's goals and objectives are subject to change making it necessary to continuously monitor linkages between asset allocation and the investor's goals, objectives and circumstances.

9.2 Performance Evaluation

Benchmarking an alternative investment program is challenging. Many investors rely on:

- custom index proxies (static return premium over cash or equity index) or
- peer group comparisons.

Both approaches have significant limitations.

Limitations of using a custom equity index:

Example:
Using MSCI World Index plus 3% for a private equity index may help frame return expectations with regard to private equity assets but will not match the risk, return, and liquidity characteristics of the actual private equity program.

Limitations of using peer group comparisons:

- Developing peer group comparisons of a manager's investment strategy is challenging as idiosyncratic risk is high in most alternative investment funds.
- Existing providers have their own distinct benchmark construction rules which include:
  - weighting methodology,
  - definitions (whether a fund is a credit fund or an event-driven fund),
  - method for dealing with survivorship bias, and
  - other inclusion rules (is fund open or closed for new investments?)

Other challenges in performance evaluation:

- Call-down strategies (private equity, private real estate, and real assets) may require different systems of tracking and calculating performance
  - These strategies report IRR which is sensitive to the fund's cash inflows and outflows and may be subject to deliberate bias by the fund manager
  - Return profiles of two identical portfolios may differ due to heir particular call and distribution schedule
  - Investors may rely on multiple on invested capital (MOIC) to provide an additional frame of reference
  - MOIC = (Current value of underlying companies + distributions received)/total invested capital.
- Pricing issues – Stale pricing is common in alternative investment programs distorting reported return and risk metrics

Possible performance evaluation strategies:

A. For illiquid investment strategies, judgment on whether investment objectives are met should be made when all investments are monetized, and capital has been returned to investors.

B. If capital is returned very quickly (which produces high IRRs), MOIC should be used.

C. If capital is returned slowly than expected, more weight should be placed on IRR.

D. If IRR and MOIC are both weak, peer group analysis can determine whether poor performance is common across all funds of same vintage or is fund-specific.

E. Develop a qualitative understanding of underlying assets and monitor how the investment develops relative to the initial thesis

9.3 Monitoring the Firm and the Investment Process

Monitoring the firm and investment process is particularly important in scenarios where the manager cannot be terminated easily.

Issue to monitor include:

- **Key person risk:** Alternative investment strategies depend on the skill of a few investment

professionals, known as key persons, specified in fund documents.

- **Alignment of interests**: Investors want to ensure their manager's interests remain aligned with their own. Issues range from:
    - Complexity of the organization
    - Structure of management fees
    - Compensation of the investment professionals
    - Growth in assets under management
    - Amount of capital key professionals are committing to funds being managed.
- **Style drift:** Fund documents give managers latitude in exercising their investment options and parameters, but investors need to understand where the manager has a competitive advantage and skill and confirm that investments being made are consistent with manager's skill.
- **Risk management:** Investor should assess whether a fund is abiding with its risk management philosophy.
- **Client/asset turnover:** Due diligence process should include review of clients and assets. The following indicates potential issues:
    - Unusual gain in assets may make it difficult to invest in suitably attractive investments and possibly handicapping future performance.
    - Significant client redemptions may force managers to sell attractive investments as he looks for cash which is especially a problem in illiquid markets.
- **Client profile:** Investors will want to gauge the profile of fund manager's other clients. An investor may have a strong conviction in a money manager's skills, but the actions of others may affect the ability to reap benefits of those skills.
- **Service providers:** Investors should conduct periodic checks to establish whether third party service providers are independent and reputable as well as are intact and working. A change in service provider may uncover early warning signs and require further investigation.

Practice: Example 10 Curriculum, Reading 27.

Practice: End of Chapter Questions

1. INTRODUCTION

Private wealth management refers to investment strategy and financial planning for individual investors.

Private wealth managers assist individuals in their investment decision making process considering a variety of concerns and preferences.

Private clients include individuals/families looking for advisors to manage their personal wealth.

2. Private Clients versus Institutional Clients

The concerns of private clients differ from institutional clients in terms of various perspectives such as:

i) Investment objectives
ii) Constraints (time horizon, investment scale, tax considerations)
iii) Other differences (behavioral issues, regulatory bodies, governance structure)

2.1 Investment Objectives

Some common objectives for private clients include financial stability, financial security at later age, financial support to family members, charity goals, etc.

Sometimes goals of private clients are not discrete or may change with the passage of time. Unlike private clients, investment objectives of institutional clients are more discrete and rarely change with the time.

2.2 Constraints

2.2.1) Time horizon

Compared to institutions, private clients have a shorter time horizon and their time horizon often depends on the investment goals. Shorter time horizon limits individual investors' capacity to take a risk and to invest in illiquid securities.

2.2.2) Scale

Compared to institutions, portfolios of private clients are typically smaller in size, therefore, it is challenging to invest in certain risky asset classes such as hedge funds, real estate, private equities.

2.2.3) Taxes

Many institutions qualify for tax exemption whereas the income of individual clients is typically taxable, therefore tax-efficient investments are an important consideration for individual investors.

2.3 Other Distinctions

2.3.1) Investment Governance

Individual investors have less formal investment governance and investment decision-making systems. The governance structure of institutions is highly formal, often comprises of board of directors, investment committee and independent directors (investment experts).

2.3.2) Investment Sophistication

	Private Clients	***Institutions***
Degree of investment sophistication	lower	higher
Investment resources	less	more
Investment decisions	more exposed to emotional decision making	follow formal investment governance framework

2.3.3) Regulation

The regulatory systems for individual and institutional clients vary with jurisdiction. For example, in some jurisdictions a common regulatory system oversees individual and institutional clients. In other jurisdictions, individual and institutional clients are regulated by different regulatory authorities.

2.3.4) Uniqueness & Complexity

Compared to institutional investors, individual investors are unique and complex in nature and their investment preferences are determined by various factors such as their sources of wealth, background, profession, behavioral biases, preferences etc.

	Private Clients	***Institutional Clients***
For similar financial consideration and objectives	More likely to pursue ***different*** strategies	More likely to pursue ***similar*** strategies

Practice: Example 1 Curriculum, Reading 28.

3. Understanding Private Clients

3.1 Information Needed in Advising Private Clients

Financial advisors of private clients require the client's pertinent data, financial records and other information for proper consultation.

3.1.1) Personal Information

- **Introductory conversation** (one on one meeting or via phone call)
  The first meeting between the wealth manager and the prospective client provides useful information to both parties.

  Clients learn about the wealth manager's investment style, service offerings etc. Wealth managers learn about the client's personality, preferences, the purpose of investment, etc.

- **Understanding of client's situation:** The wealth manager then set up a meeting with the client to examine the client's situation and position such as:
  - client's family status - marital status, children, grandchildren, ages of family members, etc.
  - client's identification evidence
  - employment, career information, retirement planning
  - sources of the client's wealth
  - return objectives (absolute/relative, explicit goals)
  - risk tolerances
  - liquidity preferences and ESG (environment, social, & governance) considerations

3.1.2) Financial Information

Comprehending the client's financial condition is significant for a wealth manager. The managers assess the clients' assets and liabilities through various reports and information provided by the clients. Following are the typical assets and liabilities of a private client:

Sample Elements of a Private Client's Balance Sheet

Assets	Liabilities
Cash and deposit accounts	Consumer debt (credit card, outstanding loan)
Brokerage accounts	Automobile loans
Retirement accounts (DB/DC plans)	Student loans
Other employee benefits (stocks, options)	Mortgages/home equity loans
Ownership interests	Margin obligation in a brokerage account
Life insurance (cash value)	
Real Estate (residential, rental, land)	
Other personal assets (art, auto, jewelry)	

In addition to clients' assets and liabilities, wealth managers take into consideration the clients' cash flows, sources of cash flows, expense information, etc.

3.1.3) Private Client Tax Considerations

Tax returns provide useful information about clients' tax situations. Common types and strategies of taxes are provided in this section.

3.1.3.1) Common Tax Categories

Taxes on individuals vary by jurisdiction. Some common types include:

i) ***Taxes on income*** (e.g. tax on salaries, interest, dividends, rental income)

ii) ***Wealth-based taxes*** (e.g. taxes on holding property, inheritance, transfer of wealth)

iii) ***Taxes on consumption/spending*** (e.g. sales tax, value-added taxes)

Note: Application of capital gain taxes is complex and varies considerably in various jurisdictions.

3.1.3.2) Basic Tax Strategies

Basic strategies of managing taxes, when devising asset allocation decisions for private clients are:

i) ***Tax avoidance:*** Individuals naturally tend to avoid taxes and therefore find ways to do so. Some jurisdictions offer tax-free earnings and withdrawals for certain types of accounts. Some offer different wealth transfer methods to avoid heavy taxes. Some allow a limited amount of tax-free gift transfer.

Note: Tax avoidance should not be misinterpreted as *illegal tax evasion.*

ii) ***Tax reduction:*** Wealth managers tend to find appropriate client-specific tax strategies to increase the value of the portfolio on an after-tax basis. For example, for clients:

- with the highest tax brackets, the investment advisor may focus on tax minimization by investing in assets that experience future capital gains rather than current taxable income.
- who are tax-exempt, it will NOT be appropriate to invest in tax-exempt investments (e.g. Municipal bonds.

iii) ***Tax deferral:*** Tax deferral strategies are those that seek to defer (postpone) taxes to take advantage of compounding portfolio returns. Such strategies are suitable for investors

- who are in the progressive tax regime and they anticipate lower future tax rates
- focus on lower portfolio turnover
- defer their higher marginal tax rate until retirement (when they believe they will be in lower tax bracket)

Practice: Example 2 Curriculum, Reading 28.

3.1.4) Other Relevant Information

Other relevant information wealth managers may require from individuals for more suitable financial planning include:

- Legal or governing documents such as wills and trust
- Insurance-related information (life insurance, insurance coverage, etc.)
- Decision-making parameters and guidelines such as authorization, primary contact
- Portfolio reporting practices (frequency, format, method)
- Consent regarding information shared to other professionals (accountants, lawyers)

3.2 Client Goals

Wealth managers help private clients in setting up and prioritizing their goals and objectives so that they can bring into line an appropriate investment strategy.

Two common types of goals for private clients are:

- Planned goals
- Unplanned goals

3.2.1) Planned Goals

Goals that can be assessed or measured reasonably within a specified time horizon are referred to as *planned goals*. Some examples of **planned goals** are:

- *Retirement*
- *Specific purchases* (primary house, vacation home, luxury items)
- *Education* (funding children's education)
- *Family events* (wedding)
- *Wealth transfer* (inheritance goals)
- *Philanthropy* (donations, charities)

3.2.2) Unplanned Goals

Goals that are difficult to assess or measure are called unplanned goals, such as unexpected financial needs.

Some examples of **unplanned goals** are:

- Property repairs
- Medical expenditures (not covered under health insurance, varies by jurisdiction)
- Other unexpected spending

3.2.2) The Wealth Manager's Role

When articulating clients' goals, wealth manager's three main concerns are:

i) ***Goal quantification*** - as private client's' goals are often not well articulated
ii) ***Goal prioritization*** – as private clients often have multiple and competing goals.
iii) ***Goal changes*** – as private clients' goals vary when their ongoing needs or circumstances change.

Wealth managers should help clients in quantifying, prioritizing and reconsidering their goals.

Practice: Example 3 Curriculum, Reading 28.

3.3 Private Client Risk Tolerance

Recognizing the client's risk tolerance is substantial for successful investment policy. Key risk-related concepts may include:

i) **Risk tolerance** is an investor's willingness to take the risk (opposite of risk aversion)

ii) **Risk capacity** is an investor's capacity to take financial risk. Risk capacity is often determined by *objective* factors such as level of wealth, income, liquidity requirements, etc.

iii) **Risk perception** is an investor's attitude towards risk (his perception about the riskiness

of investment decision). This is a *subjective* concept and it varies significantly among clients.

Note: Compared to risk tolerance:
- risk capacity is a more objective concept
- risk perception depends on investor's circumstances

3.3.1) Risk Tolerance Questionnaire

For efficient investment planning and to address client-specific goals, wealth managers often use ***risk tolerance questionnaires*** as input (typically numerical values) in the investment planning process.

However, these questionnaires are not perfect, are highly subjective and greatly rely on the structural design of the questionnaire and the investment manager's judgment.

For Sample Risk Tolerance Questionnaire, refer to Exhibit 2, Reading 28, CFA Institute's Programs curriculum.

3.3.2) Risk Tolerance Conversation

Advisors meet with clients to gather additional useful information such as investor's personality type, the influence of family/friends, wealth accumulation sources, sensitivity to losses, early experiences with money, etc. Moreover, such meetings allow advisors to educate clients for setting realistic goals.

3.3.3) Risk Tolerance with Multiple Goals

Sometimes clients' risk tolerance varies for various goals. Advisors should carefully handle such issues by individually handling the risk tolerance for each goal.

3.4 Technical and Soft Skills for Wealth Managers

Wealth managers require both technical and soft skills for successful portfolio management.

3.4.1) Technical Skills

Technical skills are professional qualifications, necessary skills and proficiencies to provide investment advice to private clients. Technical skills may include:

- **Capital market proficiency** (understanding of capital markets and asset classes)
- **Portfolio construction ability** (understanding portfolio risks, returns, asset classes' correlations, etc.)
- **Financial planning knowledge** (basic understanding of related professions e.g. laws, taxation, insurance)
- **Quantitative skills**
- **Technical skills** (application of various high-tech software, portfolio optimization, simulation/modeling tools, etc.)
- **Language fluency** (multiple language skills)s

3.4.2) Soft Skills

The ability to effectively communicate with clients is referred to be a part of soft skill. Soft skills are typically subjective in nature. Some common examples of soft skills include:

- Communication skills
- Social skills
- Education and coaching skills
- Business development and sales skills

Practice: Example 4 Curriculum, Reading 28.

4. Investment Planning

After obtaining the basic knowledge about the private client, the advisor then reviews the client's strategic investment planning approaches. Three main concepts include capital sufficient analysis, retirement planning, the client's IPS.

4.1 Capital Sufficiency Analysis

Capital sufficiency analysis, also referred to as capital needs analysis, is a method by which wealth managers analyze whether clients' financial resources are adequate to meet their objectives.

4.1.1) Methods for Evaluating Capital Sufficiency

Two primary methods for capital sufficiency analysis are:

1. **Deterministic forecasting** – is a simple (but unrealistic) forecasting method where the manager assumes a single linear annual compound rate that the portfolio is expected to earn over the investment horizon.

2. **Monte Carlo simulation** – considers mean return and standard deviation. This allows variation in annual expected return which is randomly generated from the analyst's input of possible return ranges (distribution). The process is

repeated to identify the possible paths of annual returns. Summation of investment results gives the analyst an understanding of the probable future portfolio returns.

4.1.2) Inputs to Capital Sufficiency Analysis

For **capital sufficiency analysis**, analysts must state the following inputs:

- expected portfolio return
- current portfolio value
- expected future contributions into the portfolio
- expected cash outflows from the portfolio
- tax, inflation, management fees

For the **Monte Carlo simulation**, inputs are more complex and involve many variables. Depending on the software, assumptions can be at the portfolio level or at the asset class level such as average return, standard deviation, correlation of asset classes, etc. Some software allows flexibility in the portfolio's time horizon based on the investor's life expectancy.

Note: Regardless of the method used, analysts should be careful about the historical return values as input and should give more emphasis to the anticipated capital market expectations.

4.1.3) Interpreting Monte Carlo Simulation Results

Analysts should provide a useful interpretation of the analysis (especially the outcomes of Monte Carlo simulation) to their clients and guide them with the potential solutions keeping in view the clients' objectives and risk tolerances.

Practice: Example 5 Curriculum, Reading 28.

4.2 Retirement Planning

Financial planning for individuals' retirement has gained attention as the global average life expectancy of senior people has increased steadily specialty in developed countries.

Three main principles of retirement planning involve:

1. Retirement stage of life
2. Retirement goals' analysis
3. Retired clients' behavioral considerations

4.2.1) Retirement Stage of Life

Wealth managers help individuals in evaluating their retirement planning e.g. when to retire, how much to save for retirement, ongoing cashflow needs following retirement, etc.

The table below demonstrates the typical financial stages of individuals and their relevant concerns for each stage.

Individuals' financial stages	Individuals key interest/pursuits
Education	• building human capital.
Early career	• conflicting financial priorities (family concerns, housing, education) • start saving for retirement
Career-development *Peak-accumulation* *Pre--retirement*	• significance of retirement increases gradually • work and save for retirement • convert human capital to financial capital progressively • gradually build financial benefits (pension, retirement income) and reduce financial liabilities (loans)
Early retirement	• rely on cashflows from their income sources (pension, job) and investment portfolio
Late retirement	• typically, expenditures on o travel/recreation decrease o medical /health increase

Wealth managers play an important role for individuals (especially in early and late retirement stages) in generating a sustainable income from their investment portfolio.

4.2.2) Analyzing Retirement Goals

Three common ways to evaluate client's retirement goals are:

1. Mortality table
2. Annuities
3. Monte Carlo Simulation

4.2.2.1) Mortality Tables

Morality table – Mortality tables enable advisors to estimate clients' future expected cash needs based on their current age, life expectancy, and survival probabilities. One drawback is that the mortality table is based on averages only i.e. an investor may live longer than expected which implies that an investor's portfolio may suffer from ***longevity risk.***

Practice: Example 6 Curriculum, Reading 28.

4.2.2.1) Annuities

Annuities – By pricing an annuity, a wealth manager estimates the present value of the retirement spending needs of a client. Some basic types of annuities include:

Immediate annuity - is an annuity contract that is purchased with a single lump-sum payment and in exchange, pays a guaranteed income that starts almost immediately.

Deferred annuity - is an annuity where the payments received will start sometime in the future.

Life annuities - pay benefits only as long as the individual is alive. Life annuities alleviate longevity risk.

4.2.2.1) Monte Carlo Simulation Revisited

Monte Carlo simulations can be used to plan retirement goals especially when clients do not want annuities.

Advantages of Monte Carlo simulation include:

- flexibility
- using client's actual asset allocation
- capturing the effects of multiple situations and clients' concerns

Limitations of Monte Carlo simulation:

- The output is not always accurate, depends on the accuracy of inputs used and is very sensitive to small changes in inputs.
- Monte Carlo simulation does not take into account shortfall magnitude (the amount by which the investment portfolio falls short of the targeted value)

Practice: Example 7 Curriculum, Reading 28.

4.2.3) Behavioral Consideration in Retirement Planning

Some common behavioral biases related to retirees are as follows:

- **High degree of loss aversion:** Retirees demonstrate high loss aversion bias (as compared to young individuals), which influences their investment planning by affecting their asset allocation and return expectations.
- **Consumption gaps:** Retirees typically spend less than expected. The high consumption gap is often attributed to loss aversion bias and uncertain future spending needs.
- **The *"annuity puzzle"*:** Retirees rarely prefer to invest in annuities. This is called annuity puzzle and is usually caused by factors such as:
  - hopes to acquire funds for retirement
  - not losing control over the assets
  - cost of annuities
- **Favoring investment income over capital appreciation:** Individuals typically tend to separate investment income from capital appreciation and feel comfortable spending income/dividends rather than the proceeds from the capital appreciation. This is a kind of self-control bias.

5. Investment Policy Statement (IPS)

Before constructing the client's portfolio, wealth managers prepare the client's investment policy statement (IPS). A well-constructed IPS documents the client's financial objectives, risk tolerance, and investment constraints.

IPS should be reviewed regularly, and must be revised whenever the client's financial situation and/or capital market expectations change.

Advantages:

- An IPS sets operational guidelines for constructing a portfolio and assures coherence between the client's guidelines and the client's portfolio.
- An IPS facilitates investment advisors to better know their clients, provides guidance for investment decision making and render their fiduciary responsibilities.

5.1 Parts of the Investment Policy Statement

Key parts of an IPS are:

- Client's background and investment objectives
- Chief investment parameters
- Portfolio asset allocation
- Duties and responsibilities of parties involved

5.1.1) Background and Investment Objectives

Key elements of the client's background include:

- **Personal information** (name, age)
- **Financial information** (market value of the portfolio, types of assets, tax information,

finances outside the portfolio or managed by any other advisor, other cashflow sources)
- **Investment objectives**, which may be general or detailed/quantified, ongoing (retirement goals, supporting family) or one time (buying home, traveling), primary or secondary in case of multiple objectives.
- **Information about other cashflows** that can affect the investment objectives (significant contributions or withdrawals, substantial liquidity needs).

Wealth managers should provide support to clients in case they face difficulty in

- prioritizing their goals amid multiple goals
- defining specific goals
- assigning pertinent amounts to certain goals

Wealth managers often use capital sufficiency analysis and their judgement to align investors' goals with their current assets and risk tolerance level.

Practice: Example 8 Curriculum, Reading 28.

5.1.2) Investment Parameters

The investment parameter section of the IPS indicates key client's preferences that can affect his investment plan and should be considered by wealth managers.

5.1.2.1) Risk tolerance

In this section wealth manager assesses the client's risk tolerance i.e. his ability and willingness to take the risk. The manager specifies his conclusion along with all the supported elements (subjective, objective, questionnaire) used in the process.

5.1.2.2) Investment time horizon:

In this section, wealth managers plot the client's investment horizon typically as a range. The client's time horizon may have a single stage or multiple stages, long-term (>15 years) or short-term (< 10 years).

5.1.2.3) Asset class preferences

Wealth managers should state (with reference to a client):

- suitable asset classes and asset classes not allowed by the client
- short description of asset allocation prominence and procedure
- risk-return characteristics of asset classes
- client's risk-return settlements/trade-off

5.1.2.4) Other investment preferences:

Other investment preferences section handles additional investment settings such as guidelines for social or special purpose investing, ESG considerations, retaining shares of a particular company, etc.

5.1.2.5) Liquidity preferences:

In this section, the manager states those liquidity needs not specified in the background and investment objectives section, such as the client's liquidity preference for ongoing expenses, emergency reserves, negative liquidity events.

5.1.2.6) Constraints:

Client's preference or restriction for certain investment strategies for example options, investments that can cause significant tax liabilities, strategies involving large unrealized capital gains as well as ESG related restrictions.

Practice: Example 9 Curriculum, Reading 28.

5.1.3) Portfolio Asset Allocation

In this section, wealth managers define the target allocation of each asset class.
Managers who tend to follow:
- **strategic asset allocation** usually state target allocation plus upper & lower bounds.
- **tactical allocation** usually state asset class target ranges.

5.1.4) Portfolio Management

This IPS section stipulates instructions about the following ongoing management matters.

5.1.4.1) Discretionary Authority – investment manager's authority (given by the client) to take action without the client's consent.

Full discretion (non-discretion) means the manager ***does not require (requires)*** the client's approval before implementing any change to the portfolio such as portfolio rebalancing, changing fund managers.

5.1.4.2) Rebalancing: This IPS section demonstrates the rebalancing policies used by the wealth managers.

- **Time-based approach** - portfolio is rebalanced at a certain time frame (quarterly, semi-annually).
- **Threshold-based approach** - portfolio is rebalanced when asset class weights deviate from their target levels by a pre-determined percentage.

5.1.4.3) Tactical Changes: This section is relevant only if the tactical asset allocation is applicable (as mentioned in the asset allocation section). Portfolio manager should state the circumstances and the extent to which he/she is allowed to go beyond the permissible asset class levels when making tactical shifts.

5.1.4.4) Implementation: This section specifies information regarding the appropriate choice of investment vehicles and associated costs. Such as:

- whether to prefer in-house or third-party money managers or a combination of both.
- whether to prefer mutual funds, ETFs or individual securities
- method and frequency of applying due diligence process

5.1.5) Duties and Responsibilities

This section provides information about the general responsibilities of a wealth manager and the frequency of a client's IPS review.

5.1.5.1) Wealth Manager Responsibilities: This section provides a detail description of wealth manager duties in order to meet client objectives. Some common duties may include:

- Preparing suitable asset allocation
- Monitoring and rebalancing the asset allocation
- Preparing and reviewing IPS
- Choosing appropriate investment vehicles and strategies, and assessing costs of these strategies
- Monitoring 3rd part service providers
- Evaluating the use of derivatives, leverage, short sales, etc.
- Reporting important particulars (such as portfolio performance, taxes, financial statements, voting proxies)

5.1.5.2) IPS Review: Wealth managers perceive whether the current frequency of IPS review is serving the purpose of meeting investment objectives.

5.1.6) IPS Appendix

This section includes items that require adjustments more frequently than other IPS sections. Two examples of such items are provided below.

5.1.6.1) Modeled Portfolio Behavior: In this section, the portfolio manager explains the modeled distribution of returns at various time periods (range of possible outcomes rather than expected compound return value).

5.1.6.2) Capital Market Expectations: In this section, the wealth manager typically describes his modeled portfolio values including expected returns, standard deviation, correlation of asset classes, modeled compound annual return, etc.

5.2 Sample Investment Policy Statement for a Private Client

Refer to exhibit 5 for sample IPS for a private Client CFA Institute's program curriculum, Reading 28

6. Portfolio Construction and Monitoring

After preparing the IPS, the next phase of a private client's portfolio management process includes portfolio construction and monitoring.

6.1 Portfolio Allocation and Investments for Private Wealth Clients

Two main approaches to portfolio construction for a private client are:

1. Traditional approach
2. Goal-based investing approach

6.1.1) Portfolio Construction – Traditional Approach

Key steps for portfolio construction using the traditional approach are:

i) ***Identify asset classes:*** Selecting suitable asset classes for the clients' portfolio. Asset classes may vary by wealth managers.

ii) ***Develop capital market expectations:*** Estimating returns, standard deviation, the correlation among asset classes, changes in financial markets, etc.

iii) ***Determine portfolio allocations:*** Wealth managers may apply to mean-variance optimization (MVO). MVO is a risk budgeting tool to help investors spend their risk budget wisely. MVO provides a structure that maximizes a portfolio's expected return for an expected risk level by determining how much to allocate to each asset class.

iv) ***Assess constraints:*** Wealth managers should include and assess the client's constraints when constructing an appropriate portfolio. Constraints might include issues regarding base currency, concentrated position in a single stock, illiquid investment, etc.

v) ***Implement the portfolio:*** Wealth managers then consider various selections e.g. active versus passive management, which factors to choose within an asset class, individual securities or pooled investment vehicles, currency hedging, etc.

vi) ***Determine asset location:*** Asset location is an important consideration for private clients with multiple accounts. Asset location refers to *locating/placing* investments in appropriate accounts e.g. non-taxable investments should be located in "taxable" accounts whereas taxable investments should be located in "tax-exempt" accounts.

6.1.2) Portfolio Construction – Goals-Based Investing Approach

- A goals-based approach involves splitting the investor's portfolio into many sub-portfolios. Each sub-portfolio attempts to attain a specific goal. Wealth managers identify client goals and match each goal with some sub-portfolios of suitable asset size typically by applying mean-variance optimization (MVO) at the sub-portfolio level.
- Dividing goals help individuals in determining their risk tolerance or urgencies at the sub-goal level. A problem with the goals-based approach is that the overall portfolio may lie below the efficient frontier.
- The goals-based approach follows the same steps as the traditional approach mentioned earlier (e.g., identifying asset class, implementing the portfolio, determining asset location).

Practice: Example 10 and 11 Curriculum, Reading 28.

6.2 Portfolio Reporting and Review

Portfolio reporting – managers provide periodic information about portfolio performance and key milestones through email or other means.

Portfolio review – involves meeting with the client to review the client's investment strategy.

6.2.1) Portfolio Reporting

A portfolio report usually discloses the following matters:

- Portfolio asset allocation report
- Performance summary report (year-end)
- Detailed performance report (at the asset class and securities level)
- Historical performance report about the client's investment strategy (since inception to date)
- Current period contribution/withdraws
- Current period purchase and sale of securities report
- Impact of exchange rate and currency fluctuations

Note: In addition to the portfolio report, sometimes wealth managers provide to the clients some additional information (via email or letter) e.g., commentary on recent economic or financial events.

The portfolio **performance evaluation horizon** typically ranges from one quarter to one year whereas the portfolio **investment horizon** is typically long-term (5-years, 10-years, etc. depending on the client's goals). This gap (mismatch) may impair the client's ability to comprehend the portfolio's efficiency correctly. Therefore, it is imperative for a wealth manager to well communicate and carefully manage the client's expectation about portfolio performance.

In **goals-based investing**, the manager typically reports portfolio performance in pursuance of his plans towards achieving the client's goals.

In **benchmark reporting**, managers typically report the overall portfolio performance relative to some suitable benchmark and the asset class performances relative to some suitable asset class benchmarks.

Practice: Example 12 Curriculum, Reading 28.

6.2.2) Portfolio Review

Portfolio review process involves

- higher engagement between manager and client
- reviewing client's investment plan and strategies such as:
  - changes in client's objectives, risk tolerance, time frame, liquidity needs, cash flow situation, estate planning
- comparing client's current asset allocation to target allocation

For the portfolio review process, wealth managers typically make use of CRM software and usually deliver a written document to the client to avoid any future confusion and misinterpretation.

6.3 Evaluating the Success of an Investment Program

The following sections highlight the important aspects to be considered when evaluating the success of a private investment program.

6.3.1) Goal Achievement

The success of a private investment plan is measured by the fact that whether the portfolio is likely to meet the investment goals with the resources available and tolerable risk levels, within the time frame and without the significant alterations to the plan.

6.3.2) Process Consistency

Wealth managers typically consider the following questions in evaluating the consistency of the client's investment program.

- Has the portfolio rebalancing according to the recommended IPS instructions?
- Has the wealth manager tended to cut down costs/expenses where possible?
- Has the wealth manager inquired for the client for potential changes in the client's 'objectives, time horizon, risk tolerance?
- Has the wealth manager considered matters such as taxation, ESG preferences, the client's estate plan, where applicable?
- The impact of tactical positioning on the portfolio performance where applicable.
- Where applicable, 3rd party fund managers' performance relative to their benchmarks? And the impact of changes on the portfolio, suggested by the wealth manager to the 3rd party fund managers.

6.3.3) Portfolio Performance

Two common portfolio performance benchmarks for a private client are:

i) ***absolute*** performance benchmark (e.g., fixed % return plus inflation)
ii) ***relative*** performance benchmark (e.g., portfolio return relative to an appropriate benchmark)

6.3.4) Definitions of Success

At the beginning of the investment program, wealth managers should coordinate with their clients in defining the measures of success to avoid any confusion later.

Practice: Example 13 Curriculum, Reading 28.

7. Ethical and Client Considerations in Private Wealth Management

The following sections briefly highlight the ethical and compliance issues for private wealth managers.

7.1 Ethical Considerations

CFA Institute's Code of Ethics and Standards of Professional Conduct are the reference point for ethical clarification. Some ethical considerations relevant to private wealth managers are as follows.

7.1.1) Fiduciary Duty and Suitability

Fiduciary duty: obligation of a wealth manager to act in the best interest of the client.

Suitability is considered to be an essential element of a wealth manager's fiduciary duty. Wealth managers should assess the suitability and appropriateness of a portfolio relative to the client's needs and circumstances.

Suitability and fiduciary duty are covered in standard:

- *I(B): Independence and Objectivity*
- *III(A) Loyalty, Prudence and Care*
- *III(C): Suitability*
- *V(A): Diligence and Reasonable Basis*

7.1.2) Know Your Customer (KYC)

Know your customer KYC rule requires wealth managers to obtain information about their clients such as sources of their wealth, risk and return objectives, etc. KYC document help authorities to uncover fraudulent activities.

7.1.3) Confidentiality

It is wealth managers' primary responsibility to secure and protect their clients' personal and confidential information. This issue becomes highly sensitive when multiple family members/friends are the wealth manager's clients.

Wealth managers should properly understand their employer's written confidentiality policies and procedures. Confidentiality has been discussed in *Standard III(E): Preservation of Confidentiality*.

7.1.4) Conflicts of Interest

Wealth managers fee and compensation arrangements may raise potential conflicts of interest. Controlling and managing such conflicts is an integral part of the asset

management industry. This subject is covered under Standard:

- I(B) Independence and Objectivity
- VI: Conflicts of Interest

Practice: Example 14 Curriculum, Reading 28.

7.2 Compliance Considerations

Wealth managers are required to follow various regulatory rules. Some globally enacted regulations related to compliance include:

- MiFID II (Markets in Financial Instruments Directive)
- Common Reporting Standard
- FATCA (the Foreign Account Tax Compliance Act)

To increase investor protection, in the Unites States, ***fiduciary rule*** and ***best interest rule*** are two additional proposed regulations related to wealth managers.

Refer to Exhibit 13 for detail description of key compliance regulations listed above.
CFA Institute's program curriculum, Reading 28

8. Private Client Segments

This section illustrates the major categories of private wealth clients and the levels of services and solutions provided to them by the private wealth management firms.

8.1 Mass Affluent Segment

Mass Affluent segment	
Primary focus of investors	building investment portfolio, accomplishing investment planning needs, saving/investing for retirement etc.
Clients per wealth manager	Higher number of clients per wealth managers
Service	Wealth managers: o often make use of technology(software) in service delivery o do not apply customized strategies for clients
Manager Compensation	Asset managers either earn commission on investment transactions or charge fee as a % of the asset under management

8.2 High-Net-Worth Segment

High-Net-Worth Segment	
Primary focus of investors	Customized investment management, tax and wealth transfer matters, estate planning.
Clients per wealth manager	Lower number of clients per wealth managers as compared to the mass affluent segment.
Service	Wealth managers apply custom-build strategies. Handling portfolios of high-net-worth clients demand financial and investment expertise.

8.3 Ultra-High-Net-Worth Segment

Ultra-High-Net-Worth Segment	
Primary focus of investors	broader range of service requirements, intricate tax and estate planning concerns multi-generational time horizons
Clients per wealth manager	Few clients per wealth managers
Service	Wealth managers provide personalized investment solutions. Other services may include: concierge, bill payment, travel preparation, assistance on purchasing assets such as artwork, jet etc. Wealth managers often manage multiple family members accounts, therefore, should deal with issues such as family authority, inheritance, etc. Sometimes, wealth manager is required to set up a team of multiple service providers with highly specialized skills (such as tax consultant, legal advisor, investment specialist etc.) Some wealthy individuals hire a ***family office***. A family office is a unique asset management firm that works exclusively for such clients.

Practice: Example 13 Curriculum, Reading 28.

8.4 Robo-Advisors

Robo-advisory services provide digital programs and client interface for investment solutions without direct interaction with financial advisors.

First, a client digitally enters his assets, liabilities, risk preferences, target investment returns in a web-based investor questionnaire. Then the robo-adviser software composes recommendations based on the client's stated parameters and historical market data using algorithmic rules, MVO or some other advanced system.

Robo-advisors are offering services such as ongoing portfolio monitoring and managing, periodic rebalancing, regular portfolio performance reporting, etc.

Robo-advisors technology is offering cost-effective financial guidance for less wealthy investors.

Robo-advisors are contributing to providing services in other private investment management activities, for example, integrating ESG considerations into portfolios, understanding investor behavior, developing tax-efficient techniques.

Practice: End of Chapter Questions + FinQuiz Questions & Item-sets

1. INTRODUCTION

The major objective of private wealth managers is to maximize after-tax wealth of a client consistent with his/her risk tolerance and portfolio constraints. Taxes (particularly for high-net-worth individuals) tend to have a substantial impact on the net performance of the portfolio.

2. OVERVIEW OF GLOBAL INCOME TAX STRUCTURES

Tax structures: The rules that specify how and when different types of income are taxed by the government are called tax structures. Such rules are determined by national, regional, and local jurisdictions. Tax structures vary among countries depending on the funding needs and objectives of the governments. Hence, it is necessary for investment advisors to understand the impact of different tax structures on portfolio returns.

Sources of Tax Revenue for a government:

Major sources of government tax revenue include:

1) **Taxes on income:** These refer to taxes charged on income, including salaries, interest, dividends, realized capital gains, and unrealized capital gains etc. These taxes are applied to individuals, corporations, and other types of legal entities.
2) **Wealth-based taxes:** Taxes charged on holdings of certain types of property (e.g. real estate) and taxes charged on transfer of wealth (e.g. taxes on inheritance) are called wealth-based taxes.
3) **Taxes on consumption:** Taxes on consumption include:

- **Sales taxes:** Taxes charged on the price of a final good/service are called sales taxes. They are applied to final consumers in the form of higher price of goods/services.
- **Value-added taxes:** Taxes charged on the price of an intermediate good/service are called value-added taxes. They are also borne by the final consumers in the form of higher price of goods/services.

2.2 Common Elements

A tax structure applies to various incomes including:

- Ordinary income i.e. earnings from employment.
- Investment income (also known as capital income): It includes interest, dividends, or capital gains/losses.
  - Typically, long-term capital gains are taxed at favorable rates compared to short-term capital gains.

Types of Tax Structures:

A. Progressive rate tax structure: In a progressive rate tax structure, the tax rate increases with an increase in income i.e. people who earn higher income pay a higher tax rate. It is the *most common structure*.

Example:

Taxable Income $		Tax on	Percentage on Excess
Over	Up to	Column 1	Over Column 1
0	10,000	---	20
10,000	23,000	0.20 (10,000) = 2,000	25
23,000	50,000	0.25 (23,000 –10,000) =3,250 • 3,250 + 2,000 = 5,250	35
50,000	70,000	0.35 (50,000 -23,000) = 9,450 • 9,450 + 5,250 = 14,700	38
70,000		0.38 (70,000 – 50,000) = 7,600 • 7,600 + 14,700 = 22,300	40

Suppose, an individual has taxable income of $65,000, then the amount of tax due on taxable income will be as follows:

$14,700 + [(65,000 – 50,000) × 0.38] = $14,700 + $5,700
= $20,400

Average tax rate = Total taxes paid / Total taxable income

Average tax rate = $20,400 / $65,000 = 31.38%

Marginal tax rate: Tax rate paid on the highest dollar of income is called marginal tax rate.

Marginal tax rate = 38%

B. Flat rate tax structure: In a flat rate tax structure, all taxable income is taxed at the same rate, regardless of income level.

Practice: Example 1, Volume 2, Reading 29.

2.3 General Income Tax Regimes

CLASSIFICATION OF INCOME TAX REGIMES

Regime	1–Common Progressive	2–Heavy Dividend Tax	3–Heavy Capital Gain Tax	4–Heavy Interest Tax	5–Light Capital Gain Tax	6–Flat and Light	7–Flat and Heavy
Ordinary Tax Rate Structure	Progressive	Progressive	Progressive	Progressive	Progressive	Flat	Flat
Interest Income	Some interest taxed t favorable rates or exempt	Some interest taxed t favorable rates or exempt	Some interest taxed t favorable rates or exempt	Taxed at ordinary rates	Taxed at ordinary rates	Some interest taxed t favorable rates or exempt	Some interest taxed t favorable rates or exempt
Dividends	Some dividends taxed t favorable rates or exempt	Taxed at ordinary rates	Some dividends taxed t favorable rates or exempt	Some dividends taxed t favorable rates or exempt	Taxed at ordinary rates	Some dividends taxed t favorable rates or exempt	Taxed at ordinary (flat) rates
Capital Gains	Some capital gains taxed favorably or exempt	Some capital gains taxed favorably or exempt	Taxed at ordinary rates	Some capital gains taxed favorably or exempt	Some capital gains taxed favorably or exempt	Some capital gains taxed favorably or exempt	Taxed at ordinary (flat) rates
	Most common Tax regime		Least common Tax regime		Second most common Tax regime		

3. AFTER-TAX ACCUMULATIONS AND RETURNS FOR TAXABLE ACCOUNTS

Taxes on investment returns have a significant impact on the portfolio performance and future accumulations; hence, investors should evaluate returns and wealth accumulations of different types of investments subject to different tax rates and methods of taxation.

The effect of taxes on investment returns depends on the following factors:

- Tax rate
- Return on investment
- Frequency of payment of taxes

There are two types of methods of taxation:

1) Accrued taxes on interest and dividends that are paid annually.
2) Deferred capital gain taxes.

3.1.1) Returns-Based Taxes: Accrued Taxes on Interest and Dividends

Accrual taxes are taxes that are levied and paid on a periodic basis, usually annually. Under accrual taxation method,

$$\text{After-tax return} = \text{Pre-tax return} \times (1 - \text{tax rate applicable to investment income}) = r \times (1 - t_i)$$

$$\text{After-tax Future Accumulations after n years} = FVIF_i = \text{Initial investment value} \times [1 + r(1 - t_i)]^n$$

$$\text{After-tax investment gain} = \text{Pretax investment gain} \times (1 - \text{tax rate})$$

Tax Drag on capital accumulation: Reduction in after-tax returns on investment due to taxes during the compounded period is called tax drag.

Tax drag ($) on capital accumulation = Accumulated capital without tax – Accumulated capital with tax

Tax drag (%) on capital accumulation = (Accumulated capital without tax – Accumulated capital with tax) / (Accumulated capital without tax – Initial investment)

Example: Suppose, an investor invested $150 at 6.5% per annum for 10 years. The returns are taxed annually at the tax rate of 30%. Then,

$FVIF_i = \$150 \times [1 + 0.065 (1 – 0.30)]^{10}$
$= \$234.06$

In the absence of taxes on returns,
$FVIF_i = \$150 \times [1 + 0.065 (1 – 0.00)]^{10}$
$= \$281.57$

Tax drag ($) on capital accumulation
= ($281.57 – $234.06) = $47.51

Tax drag (%) on capital accumulation
= ($281.57 – $234.06) / ($281.57 – $150)
= $47.51 / $131.57 = 0.3611 = 36.11% ➔This rate is greater than the ordinary income tax rate.

When investment returns are subject to accrued taxes on an annual basis (assuming returns are positive):

- The tax drag is greater than the nominal tax rate.
- Tax drag and investment time horizon (n) are positively correlated i.e. as the investment horizon (n) increases, tax drag increases, all else equal.
- Tax drag and investment returns (r) are positively correlated i.e. as the investment return increases, tax drag increases, all else equal.
- The investment return and time horizon have a multiplicative effect on the tax drag i.e.
  - Given investment returns, the longer the time horizon, the greater the tax drag.
  - Given investment time horizon, the higher the investment returns, the greater the tax drag.

Practice: Example 2, Volume 2, Reading 29.

3.1.2) Returns-Based Taxes: Deferred Capital Gains

Deferred capital gain taxes are taxes that are postponed until the end of the investment horizon. Under deferred capital gain tax, investment grows tax free until assets are sold.

After-tax Future Accumulations after n years = $FVIF_{cg}$
$= \text{Initial Investment} \times [(1 + r)^n (1 – t_{cg}) + t_{cg}]$

Where,

t_{cg} = Capital gain tax rate

- t_{cg} is added as it is assumed that initial investment is made on an after-tax basis and is not subject to further taxation.

Value of a capital gain tax deferral = After-tax future accumulations in deferred taxes – After-tax future accumulations in accrued annually taxes

Example:

Suppose, an investor invested $150 at 6.5% per annum for 10 years. The returns are taxed at the end of investment horizon at tax rate of 30%. Then,

$FVIF_i = \$150 \times [(1 + 0.065)^{10} (1 – 0.30) + 0.30]$
$= \$242.099$
Value of a capital gain tax deferral
= $242.099 – $234.06 = $8.039

A deferred capital gain environment accumulates $242.099/$234.06 = 1.034 times the amount accumulated in an annual taxation environment.

In the absence of taxes on returns,

$FVIF_i = \$150 \times [1 + 0.065 (1 – 0.00)]^{10} = \$281.57$

Tax drag (%) on capital accumulation
= ($281.57– $242.099) / ($281.57 – $150)
= $39.471 / $131.57 = 0.30
= 30% ➔ same as the tax rate.

When taxes on capital gains are deferred until the end of investment horizon:

- Tax drag = Tax rate.
- Tax drag is a fixed percentage irrespective of investment return or time horizon i.e. as investment horizon and/or time horizon increases → Tax drag is unchanged.
- The value of a capital gain tax deferral is positively correlated with the investment returns and time horizon i.e. the higher the investment returns and/or the longer the investment time horizon, the greater the value of a capital gain tax deferral.
- Even if marginal tax rate on the investments taxed on a deferred capital gain basis is equal to or greater than the marginal tax rate on the investments with returns that are taxed annually, after-tax future accumulations of investments taxed on a deferred capital gain basis will be greater than that of investments with returns that are taxed annually, all else equal.
  - In addition, when marginal tax rate on the investments taxed on a deferred capital gain basis < marginal tax rate on the investments with returns that are taxed annually ➔ investor will benefit from deferral of taxation as well as favorable tax rate when gains are realized.
- The investment return and time horizon have a multiplicative effect on the value of a capital gain tax deferral i.e.

- Given investment returns, the longer the time horizon, the greater the advantage of tax deferral.
- Given investment time horizon, the higher the investment returns, the greater the advantage of tax deferral.

Implication: *Investments taxed on a deferred capital gain basis are more tax-efficient than investments with returns that are taxed annually.*

IMPORTANT TO NOTE:

However, the advantages of tax deferral may be offset or even eliminated when the securities whose returns are taxed annually on an accrual basis have higher risk-adjusted returns.

Practice: Example 3, Volume 2, Reading 29.

3.1.3) Cost Basis

For tax purposes, cost basis refers to the amount paid to purchase an asset.

$$\text{Capital gain/loss} = \text{Selling price} - \text{Cost basis}$$

- The cost basis and capital gain taxes are inversely related i.e. as the cost basis decreases, the taxable capital gain increases ➔ consequently, capital gain tax increases.
- Thus, the lower the cost basis → the greater the tax liability → the lower the future after-tax accumulation, all else equal.

After-tax Future Accumulation = $FVIF_{cgb}$
$= \text{Initial investment} \times [(1 + r)^{n} (1 - t_{cg}) + t_{cg} - (1 - B)\, t_{cg}]$
$= \text{Initial investment} \times [(1 + r)^{n} (1 - tcg) + (tcg \times B)]$

Where,

B	= Cost basis expressed as a proportion of current market value of the investment.
tcg × B	= Return of basis at the end of the investment horizon. The lower the cost basis, the lower is the return of basis.
When cost basis	= initial investment ➔ B = 1,
$FVIF_{cg}$	= Initial investment × $[(1 + r)^{n} (1 - t_{cg}) + t_{cg}]$

Example: Suppose, the current market value of investment is $100 and a cost basis is 75% of the current market value (or $75). Capital gain tax rate is 25%. The investment is expected to grow at 5% for 10 years.

Since B = 0.75,
After-tax Future Accumulation
$= \$100\,[(1.05)^{10} (1 - 0.25) + (0.25)\,(0.75)] = \$140.917$

If B = 1,
After-tax Future Accumulation
$= \$100\,[(1.05)^{10} (1 - 0.25) + (0.25)] = \$147.1671$

Tax liability associated with embedded capital gains
= $147.1671 – $140.917 = $6.2501.

NOTE:

Step-up in Basis: Under step-up in basis, the value of the inherited property on the date of death is used as a cost basis for calculating any future capital gains or losses.

Practice: Example 4, Volume 2, Reading 29.

3.1.4) Wealth-Based Taxes

Unlike capital gains or interest income taxes, wealth taxes apply on the entire capital base (i.e. principal + return); thus, the wealth tax rate tends to be lower compared to capital gains or interest income.

$$\text{After-tax Future Accumulation} = FVIF_{w} = \text{Initial Investment}\,[(1 + r)\,(1 - t_{w})]^{n}$$

Where,

t_w = Annual wealth tax rate

- Tax drag (%) is greater than the nominal tax rate.
- As investment returns increase (decrease), the tax drag (%) associated with wealth tax decreases (increases).
- However, as the investment returns increase (decrease), the tax drag ($) associated with wealth tax increases (decreases).
- When investment returns are flat or negative, a wealth tax tends to decrease principal.
- The tax drag (both % & $) associated with wealth tax is positively correlated to investment horizon i.e. as investment horizon increases (decreases), the reduction in investment growth caused by wealth tax increases (decreases).

Example:

Suppose an investor invests $100 at 5% for 10 years. The wealth tax rate is 2.5%.

$$FVIF_{w} = \$100\,[(1.05)\,(1 - 0.025)]^{10} = \$126.4559$$

Practice: Example 5, Volume 2, Reading 29.

3.2 Blended Taxing Environments

Investment Portfolios are subject to different taxes. These taxes depend on the following factors:

- Types of constituent securities
- Frequency of trading of constituent securities

- Direction of returns

Components of Portfolio's investment return:

a) Proportion of total return from Dividends (p_d) which is taxed at a rate of t_d.

p_d = Dividends ($) / Total dollar return

b) Proportion of total return from Interest income (p_i) which is taxed at a rate of t_i.

p_i = Interest ($) / Total dollar return

c) Proportion of total return from Realized capital gain (p_{cg}) which is taxed at a rate of t_{cg}.

p_{cg} = Realized Capital gain ($) / Total dollar return

d) Unrealized capital gain return: The tax on unrealized capital gain is deferred until the end of investment horizon.

Total Dollar Return = Dividends + Interest income + Realized Capital gain + Unrealized capital gain

➔Unrealized capital gain = Total Dollar Return – Dividends – Interest income - Realized Capital gain

Total realized tax rate = $[(p_i \times t_i) + (p_d \times t_d) + (p_{cg} \times t_{cg})]$

Effective Annual After-tax Return: It is calculated as follows:

$r^* = r(1 - p_i t_i - p_d t_d - p_{cg} t_{cg}) = r$ (1 – total realized tax rate)

Where,

r = Pre-tax overall return on the portfolio
r* = Effective annual after-tax return

- It must be stressed that effective annual after-tax return only reflects that the negative effects of taxes apply to dividends, interest and realized capital gains; it does not reflect tax effects of deferred unrealized capital gains.

Effective Capital Gains Tax:

Effective Capital Gain Tax = $T^* = t_{cg}(1 - pi - p_d - p_{cg}) / (1 - p_i t_i - p_d t_d - p_{cg} t_{cg})$

- The more (less) accrual tax is paid annually, the lower (greater) the deferred taxes.

Future after-tax accumulation:

$FVIF_{Taxable}$ = Initial investment $[(1 + r^*)^n (1 - T^*) + T^* - (1 - B) t_{cg}]$

- When an investment is only subject to ordinary tax rates and has no capital appreciation or depreciation over the tax year period:
  - pi = 1
  - pd = 0
  - pcg = 0

  If the cost basis = market value ➔ B = 1.

  Future After-tax accumulation = $[1 + r(1 - t_i)]^n$

- For a ***Passive*** investor with ***Growth portfolio*** consisting of ***non-dividend*** paying stocks and no portfolio turnover:
  - $p_d = 0$
  - $p_i = 0$
  - $p_{cg} = 0$

  Future After-tax accumulation = $(1 + r)^n (1 - t_{cg}) + t_{cg}$

- For an ***Active*** investor with ***Growth portfolio*** consisting of realized long-term capital gains:
  - $p_d = p_i = 0$
  - $p_{cg} = 1$

  Future After-tax accumulation = $[1 + r(1 - t_{cg})]^n$

NOTE:

Deferred capital gains tax only postpones the payment of tax at the end of the investment horizon; it does not eliminate the tax liability.

Example: Suppose,

- Beginning value of portfolio = $100,000.
- Investment horizon = N = 5 years.
- Ending pretax value of portfolio after one year = $110,000.
- Cost basis = $100,000.
- Additional data is given in the table below.

Total dollar return = $110, 000 – $100,000 = $10,000
Pretax Total return = 10,000 / 100,000 = 10%

Income Type	Income Amount ($)	Tax Rate	Tax Due ($)	Annual Distribution Rate (p)
Interest	500	35	175	500/10,000 = 5%
Dividends	1,800	15	270	1800 / 10,000 = 18%
Realized capital gains	3,700	15	555	3700 / 10,000 = 37%
Total tax due			1000	

Unrealized capital gains = $10,000 – $500 – $1,800 – $3,700 = $4000

- Total tax due (i.e. $t_d + t_i + t_{cg}$) = $1000.
- Ending after-tax value of portfolio after one year = $110,000 - $1000 = $109,000.

A. The effective annual after-tax return at the end of 1st year is estimated as follows:

r* = 10% [1 – (0.05 × 0.35) – (0.18 × 0.15) – (0.37 × 0.15)]
= 9%

OR

FV = $109,000.
N = 1
PV = –$100,000.
PMT = 0

CPT→**I/Y = 9.00% = Effective annual after-tax return**

B. Effective capital gains tax rate:

T* = 0.15 [(1 – 0.05 –0.18 – 0.37) / (1 – (0.05 × 0.35) – (0.18 × 0.15) – (0.37 × 0.15)]
= 6.67%

C. Future after-tax accumulation over 5 years:

FVIF Taxable = $100,000 [(1.09) 5 (1 – 0.0667) + 0.0667 – (1 – 1.00) 0.15]
= $150,270.

Practice: Example 6, 7 & 8, Volume 2, Reading 29.

3.3 Accrual Equivalent Returns and Tax Rates (Section 3.3.1)

Accrual equivalent after-tax return is the hypothetical ***tax-free return*** that produces the future value of a portfolio equivalent to the future value of a taxable portfolio. It incorporates the effect of both realized annual taxes and deferred taxes paid at the end of holding period.

Initial Investment (1 + Accrual Equivalent Return)^n
= Future After-tax Accumulations

Accrual Equivalent Return = (Future After-tax Accumulations / Initial Investment) $^{1/n}$ – 1

- *The accrual equivalent return is always less than the taxable return.*
- *As the time horizon increases, the accrual equivalent return approaches pretax return due to increase in value of tax deferral over time.*
- *The greater the proportion of deferred capital gains in the portfolio, the greater the value of tax deferral.*

Example:

In the previous example, an investment portfolio has beginning value of $100,000 and the future after-tax value after 5 years is $150,270.

$100,000 (1 + Accrual Equivalent Return)^5
= $150,270

Accrual Equivalent Return = 8.49%
Tax drag = Taxable return – Accrual equivalent return = 10% – 8.49% = 1.51%

3.3.2) Calculating Accrual Equivalent Tax Rates

Accrual equivalent tax rate (T_{AE}) is the hypothetical tax rate that produces an after-tax return equivalent to the accrual equivalent return.

$$r (1 - T_{AE}) = R_{AE}$$

$$T_{AE} = 1 - \frac{R_{AE}}{R}$$

- The greater the proportion of income subject to ordinary tax rates or if dividends and capital gains are subject to less favorable tax rate ➔ the higher the accrual equivalent tax rate and consequently, the smaller the accrual equivalent return.
- The higher (lower) the cost basis, the lower (higher) the accrual equivalent tax rate.
- Given cost basis, the longer (shorter) the investment horizon, the lower (higher) the accrual equivalent tax rate.

Uses of the accrual equivalent tax rate:

1) To measure the tax efficiency of different asset classes or portfolio management styles i.e. the lower (higher) the accrual equivalent tax rate, the more (less) tax-efficient the investment.
2) To assess the tax impact of increasing the average holding periods of securities.
3) To assess the impact of future changes in tax rates e.g. due to changes in tax law, changes in client circumstances etc.

Practice: Example 9, Volume 2, Reading 29.

4. TYPES OF INVESTMENT ACCOUNTS

The impact of taxes on future accumulations considerably depends on the type of investment account in which assets are held.

Investment accounts can be classified into the following three categories:

1. **Taxable accounts:** In taxable accounts, investments are made on an ***after-tax basis*** and returns can be taxed in different ways.
2. **Tax Deferred accounts (TDAs):** In tax deferred accounts:

- Contributions are made on a pretax basis (i.e. tax deductible); and
- The investment returns grow tax free until the time of withdrawal at which time withdrawals are taxed at ordinary rates or another rate (T_n), prevailing at the end of the investment horizon.
  Future after-tax accumulation = FVIF $_{TDA}$
  = Initial Investment $[(1 + r)^n (1 - T_n)]$
- Due to deferred taxes, tax deferred accounts provide ***front-end loaded tax benefits*** to investors.
- In TDAs, investors are sometimes allowed to make tax free distributions.

3. **Tax-exempt accounts:** In tax-exempt accounts:

- Contributions are not tax deductible i.e. they are made on after-tax basis.
- Investment returns grow tax-free and withdrawal of investment returns in the future are NOT subject to taxation i.e. withdrawals are tax exempt.
  FVIF $_{taxEx}$ = Initial Investment $(1 + r)^n$
- Due to tax free withdrawals of investment returns at the end of time horizon, tax-exempt accounts provide ***back-end loaded tax benefits*** to investors.
  FVIF $_{TDA}$ = FVIF $_{taxEx}$ $(1 - T_n)$

Taxable	Tax Deferred	Tax Exempt
Contributions are taxable	Contributions are tax deductible	Contributions are taxable
Investment returns are taxed	Investment returns grow tax-free	Investment returns grow tax-free
	Funds withdrawn are taxed at ordinary rate	Funds withdrawn are tax-free
	FV = Initial Investment $(1 + r)^n (1 - T_n)$	FV = Initial Investment $(1 + r)^n$

Practice: Example 10, Volume 2, Reading 10.

4.3 After-Tax Asset Allocation

After-tax asset weight of an asset class (%) =
After-tax Market value of asset class ($) / Total after-tax value of Portfolio ($)

Example:

Account Type	Asset Class	Pre-tax Market Value ($)	Pretax Weights (%)	After-tax Market Value ($)	After-tax Weights (%)
TDA	Stock	1,000,000	64.52	800,000	61.54
Tax-Exempt	Bonds	550,000	35.48	500,000	38.46
Total Portfolio		1,550,000	100	1,300,000	100

Challenges to incorporating After-tax allocation in portfolio management:

- **Time horizon:** The after-tax value of investment depends on investor's time horizon which is hard to estimate and is not constant.
- **Educating clients about investment procedures:** The investment advisor needs to make clients comfortable with, aware of, and understand after-tax asset allocation.

4.4 Choosing Among Account Types

Important to Note: *The amount of money invested in a tax-exempt account may NOT necessarily always have after-tax future value > the amount invested in tax deferred account, all else equal.*

Reason: Unlike TDAs, contributions to tax-exempt accounts are NOT tax-deductible. As a result,

After-tax Initial investment in tax-exempt accounts = $(1 - T_0)$

Future value of a pretax dollar invested in a tax-exempt account = $(1 - T_0)(1 + r)^n$

Future value of a pretax dollar invested in a TDA = $(1 + r)^n (1 - T_n)$

- When the prevailing tax rate at the time of fund withdrawals i.e. T_n < (>) tax rate at the time of investment i.e. T_0 ➔ Future after-tax accumulation of assets held in a TDA will be greater (lower) than that of a tax-exempt account.
- When the prevailing tax rate at the time of fund withdrawals i.e. T_n = tax rate at the time of investment i.e. T_0 ➔ Future after-tax accumulation of assets held in a TDA will be equal to that of tax-exempt account.

Example:

Suppose, an investor has a marginal tax rate of 40% and is willing to invest $1500. He has two options to do so i.e.

1. **Invest $2,500 pretax in a TDA**(i.e. 1,500 / (1 – 0.40) = $2,500) at 5% return for 5 years ➔It will reduce current year's taxes by $1,000 (i.e. 2,500 – 1,500).

FV = $2,500 (1.05) ^{5} (1 – 0.40) = $1,914 after taxes

2. **Invest $1,500 after-tax in a tax-exempt account** at 5% return for 5 years.

FV = $1,500 (1.05) ^{5} = $1,914 ➔ the same as the TDA.

Suppose, the tax rate at the time of withdrawal is 20% which is less than current tax rate of 40%.

FV of tax-exempt account will remain unchanged. However,

FV of TDA = $2,500 (1.05) ^{5} (1 – 0.20)
= $2,552 ➔ greater than FV of tax-exempt account

Practice: Example 11, Volume 2, Reading 29.

5. TAXES AND INVESTMENT RISK

When investments are held in an account subject to annual taxes, a government shares both the part of the investment return and the investment risk i.e.,

Investors after-tax risk = Standard deviation of pre-tax return (1 – Tax rate)
= $\sigma(1 - T)$

Implication: Taxes tend to reduce both investment risk and return.

In contrast, when investments are held in TDAs or tax-exempt accounts, all of the investment risk is born by investors.

6. IMPLICATIONS FOR WEALTH MANAGEMENT

Tax Alpha: Tax alpha refers to the value generated by using investment techniques that manage tax liabilities in an effective manner.

6.1 Asset Location

Asset location refers to ***locating/placing*** investments (different asset classes) in appropriate accounts. Asset location decision depends on various factors including:

- Tax
- Behavioral constraints
- Access to credit facilities
- Age/time horizon
- Investment availability
- Planned holding period

Implications for Investors:

- Assets that are taxed ***heavily/annually*** should be held in TDA and tax exempt accounts (i.e. bonds).
  - Note: Investments in TDAs and tax-exempt accounts are subject to some limitations; e.g., investors are not permitted to hold all of their investments in these types of accounts.
- Assets that are taxed favorably (i.e. at lower rates) and/or tax deferral should be held in taxable accounts (i.e. equities or tax-free municipal bonds).
  - Note: Generally, disadvantage associated with low yields on tax-free bonds > the advantage associated with tax savings.

However, if this practice results in over allocation to one asset class that violates the client's desired asset allocation, then that over allocation should be offset by taking a short position (i.e. borrowing) outside the TDA.

For example, suppose the tax rate of bonds is greater than that of equities. In addition, suppose that an investor (say pension fund) invests a greater portion of its portfolio in bonds, resulting in over allocation to bonds. To offset it, the pension fund can borrow (i.e. short bonds) outside its portfolio and invest the proceeds from short sale in equities.

- The exact amount of funds borrowed (short selling) depends on tax rates and the way assets are taxed.
- However, it may be difficult to exploit this arbitrage because:
  - Investors may have restrictions on the amount and form of borrowing.
  - Borrowing costs are greater than the yield on a bond of similar risk.
  - Investors do not prefer to borrow due to behavioral constraints.
  - Liquidity constraints (e.g. marginal requirements or penalties on withdrawal of funds from TDAs and tax-exempt accounts).

Important to Note: When all income is subject to annual taxation and have the same tax rates, asset location would not matter.

Example:

Data is given in the table below. Suppose ***target pretax asset allocation*** is 60% bonds and 40% stocks.

When Borrowing is allowed:

Account type	Asset class	Existing Pretax Market Value ($)	Existing Pretax Allocation (%)	Asset Class	Target Pretax Market Value ($)	Target Pretax Allocation (%)
TDA	Bond	80,000	80	Bond	80,000	80
Taxable	Stock	20,000	20	Stock	40,000	40
				Short Bond	(20,000)*	(20)
Total		100,000	100		100,000	100

*(80,000 – x) / 100,000 = 0.60 ➔ x = 20,000

The overall asset allocation is $60,000 bonds and $40,000 stock which attains the target allocation of 60% bonds and 40% stocks.

When borrowing is NOT allowed:

Account type	Asset class	Existing Pretax Market Value ($)	Existing Pretax Allocation (%)	Asset Class	Target Pretax Market Value ($)	Target Pretax Allocation (%)
TDA	Bond	80,000	80	Bond	60,000	60
				Stocks	20,000	20
Taxable	Stock	20,000	20	Stock	20,000	20
Total		100,000	100		100,000	100

When borrowing is NOT allowed and investor needs a cash reserve of $5000:

Account type	Asset class	Existing Pretax Market Value ($)	Existing Pretax Allocation (%)	Asset Class	Target Pretax Market Value ($)	Target Pretax Allocation (%)
TDA	Bond	80,000	80	Bond	55,000	55
				Stocks	20,000	20
Taxable	Stock	20,000	20	Stock	20,000	20
				Cash	5,000	5
Total		100,000	100		100,000	100

6.2 Trading Behavior

The tax burden (as well as optimal asset allocation and asset location) for different asset classes depends on the investment style and trading behavior of investors.

- **Trader:** Trader trades *frequently* and recognizes all portfolio returns in the form of annually taxed short term gains. The trader accumulates the ***least*** amount of wealth, all else equal.
- **Active investor:** An active investor trades *less frequently* and recognizes some of the portfolio returns in the form of favorably taxed long-term gains. The amount of wealth accumulated by an active investor is greater than that of a trader but less than that of a passive investor and tax-exempt investor.
  - Hence, to offset the tax drag of active trading, an active investor needs to generate greater pretax alphas relative to passive investor.
- **Passive investor:** As the name implies, the passive investor does not trade frequently (i.e. passively buys and holds stock) and recognizes most of the portfolio returns in the form of favorably taxed long-term gains. The amount of wealth accumulated by a passive investor is greater than that of a trader and active investor but less than that of a tax-exempt investor.
- **Tax-exempt investor:** The tax-exempt investor is not subject to capital gains tax and buys and

holds stocks. The tax-exempt investor accumulates the ***most*** amount of wealth, all else equal.

Investor type	Accrual equivalent return	Accrual equivalent tax rate
Trader	4	1
Active investor	3	2
Passive investor	2	3
Exempt investor	1	4

Ranking: *1 = highest; 4 = lowest*

6.3 Tax Loss Harvesting

The practice of realizing capital losses that offset taxable gains in that tax year, resulting in decrease in the current year's tax liability is referred to as ***tax loss harvesting***. This strategy is most effective to use when tax rates are relatively high.

Tax alpha from tax-loss harvesting (or Tax savings) =Capital gain tax with unrealized losses – Capital gain tax with realized losses

Or

Tax alpha from tax-loss harvesting = Capital loss × Tax rate

Advantages of tax-loss harvesting:

- It reduces the tax liability in that tax year.
- It increases the amount of net-of-tax money available for investment as the tax savings associated with tax loss harvesting can be reinvested.

Disadvantages of tax-loss harvesting:

- The tax-loss harvesting doesn't allow an investor to offset taxes entirely. This strategy only allows an investor to postpone the payment of taxes in the future; because, when a security is sold at a loss and its sales proceeds are reinvested in a similar security, the cost basis of the security is reset to the lower market value and thereby increases the future tax liabilities.

Example: Suppose,

- Beginning value of portfolio = $1,000,000.
- Capital gain = $50,000
- Tax rate on capital gain = 25%
- Realized losses = $15,000

Calculations:

Capital gain tax = 0.25 × $50,000 = $12,500

Capital gain tax when losses are realized =
0.25 × ($50,000 – $15,000) = $8,750
Tax savings or Tax alpha = $12,500 – $8,750 = $3,750

Or

Tax alpha = 0.25 (15,000) = $3,750

Now suppose the securities with an unrealized loss have a current market value of $135,000 and cost basis of $150,000 (unrealized loss of $15,000). There are two options available.

- ***Option A:*** Hold securities with the unrealized loss, or
- ***Option B:*** Sell securities in the current year (say 2010) and replace them with securities offsetting the same return.

Next tax year (2011), the value of securities increases to $220,000 and the securities are sold regardless of which option an investor chooses.

Case 1:

Tax liability if the investor holds the securities until year end 2011:

Capital gain tax = 0.25 ($220,000 – $150,000) = $17,500

Case 2:

Tax liability if the investor recognizes the loss today in 2010, replaces them with securities offsetting the same return, and realizes the capital gain at year end 2011:

Capital gain tax = 0.25 ($220,000 – $135,000) = $21,250.

Total two-year tax liability under both options

	2010 ($)	2011 ($)	Total ($)
Option A	12,500	17,500	30,000
Option B	8,750	21,250	30,000

Now suppose, the investor reinvests the 2010 tax savings associated with tax-loss harvesting. He has the following two options available:

- ***Option A:*** Hold the securities, or
- ***Option B:*** Sell the securities and reinvest the proceeds and the tax savings in similar securities.

In 2011, the securities experience a 78% increase regardless of which option the investor chooses.

Case 1:

If the investor holds the securities:

Pretax Future value of securities in the next year
= $135,000 (1.78) = $240,300.

Case 2:

If the investor recognizes the loss and reinvests the proceeds and tax savings in similar securities:

Pretax Future value of securities in the next year = ($135,000 + $3,750) × (1.78) = $246,975.

After-tax value under both options if securities are sold the next year:
The new capital gain tax for Option B at the end of the next year = 0.25 [$246,975–($135,000 + $3,750)
= $27,056.25

	Pretax ($)	Tax ($)	After-Tax
Option A	240,300	22,575	217,725
Option B	246,975	27,056	219,919

Practice: Example 12, 13 & 14, Volume 2, Reading 29.

Highest-in, first-out (HIFO): It is a strategy in which highest cost basis lots are sold first to defer the tax on the low cost basis lots, resulting in decrease in current taxes.

- Like tax-loss harvesting, the total taxes are the same over time, assuming a constant tax rate over time.
- In addition, (like tax-loss harvesting) HIFO facilitates investors to reinvest the tax savings earlier, which creates tax alpha that grows over time.
- The ***cumulative tax alphas*** from tax loss harvesting increase over time. However, the annual tax alpha tends to decrease over time as the deferred gains are eventually realized (i.e. it is greatest in the early years).
- The higher the tax rates on capital gains, the greater the tax advantage associated with tax loss harvesting and HIFO.
- The more volatile the securities, the greater the tax advantage associated with tax loss harvesting and HIFO.

Lowest in, first out or LIFO: It is a strategy in which lowest cost basis lots are sold first. LIFO is used when the current tax rate is temporarily low.

It is important to understand three things:

1) ***Proper investment management strategy is more critical than proper asset location strategy***; in other words, the optimal asset location in TDAs and taxable accounts cannot dominate the negative impact of a poor investment strategy that either results in negative pretax alpha or is highly tax inefficient.
2) ***All trading is NOT necessarily tax inefficient*** i.e. tax-efficient management of securities in taxable accounts requires gains to grow passively but actively realizing losses.
3) ***It is not always optimal to harvest losses:*** When gains in future are likely to be taxed at higher rates, then the more appropriate strategy will be to defer harvesting losses in future so that higher tax on capital gains in future can be offset.

6.4 Holding Period Management

According to holding period management, when long-term gains are taxed more lightly/favorably, then investors should prefer longer holding periods.

Pretax return taxed as a short-term gain needed to generate the after-tax return equal to long-term after-tax return = Long-term gain after-tax return / (1 –short-term gains tax rate)

Example: Suppose, tax rate of short-term gains is 40% and long-term gains is 25%. An investment earned 12% return.

Long-term after-tax return = 12% (1 – 0.25) = 9%
Short-term after-tax return = 12% (1 – 0.40) = 7.2%

Pretax return taxed as a short-term gain needed to generate the after-tax return equal to long-term after-tax return = 9% / (1 – 0.40) = 15%

Practice: Example 15, Volume 2, Reading 29.

6.5 After-Tax Mean-Variance Optimization

For asset allocation, taking tax into consideration is necessary and crucial. An asset's location has a considerable impact on the after-tax risk and return assumptions i.e. after-tax returns on equities located in taxable accounts may not be the same as after-tax returns on equities located in tax-exempt accounts. Hence, the same asset held in different types of accounts represent different after-tax asset.

For example, two asset classes A and B held across two types of accounts (taxable and tax deferred) basically represent four different after-tax assets i.e. asset class A and B in a taxable and asset class A and B in a tax deferred account.

This implies that pretax efficient frontiers may not represent appropriate proxies for after-tax efficient frontiers. Thus, in the minimum variance optimization algorithm, it is more appropriate to use after-tax standard deviations of returns and accrual equivalent returns rather than pretax standard deviations and pretax returns, respectively. Additionally, the optimization process must include some constraints e.g. limits on the amount of funds and types of assets that can be allocated in tax-advantaged accounts.

Practice: End of Chapter Questions from CFA Institute's Curriculum & FinQuiz Question-bank (Item-sets + Questions.

1. INTRODUCTION

Effective multigenerational wealth management requires managing several issues including wealth transfers and the associated tax issues, as well as the capital market uncertainties to invest the wealth efficiently.

Estate planning is a definite plan that specifies the rules regarding the administration and disposition (transferring) of one's estate during one's lifetime and at one's death. It is therefore a critical component of wealth management for private clients. Effective estate planning requires intimate knowledge of the tax and inheritance laws in a particular jurisdiction.

Objectives of estate planning:

- Minimizing the cost of transferring property to heirs;
- Transferring estate assets to the desired beneficiaries;
- Planning for the efficient use of estate assets;

2. DOMESTIC ESTATE PLANNING: SOME BASIC CONCEPTS

2.1 Estates, Wills, and Probate

Estate: All of the property owned or controlled by a person is called an estate.

Estate = Financial assets + Tangible personal assets + Immoveable property + Intellectual property

Where,

- Financial assets include bank accounts, stocks, bonds, or business interests etc.;
- Tangible personal assets include artwork, collectibles or vehicles etc.;
- Immoveable property include residential real estate or timber rights etc.;
- Intellectual property include royalties etc.;

NOTE:

Assets transferred by a settlor to an irrevocable trust (discussed below) during his/her lifetime as a gift is a lifetime gratuitous and is called "***inter vivos gift***". It is not considered a part of estate. Components of estate may differ depending on legal and tax purposes.

Will: A will or testament is a document that explains the rights of others over one's property after death.

Testator: The person who authored the will and whose property is disposed of according to the will is called a testator.

Probate: It is the legal process that validates the Will, supervise the orderly distribution of decedent's assets to heirs, and protect creditors by insuring that valid debts of the estate are paid, so that all interested parties (i.e. executors, heirs etc.) can trust its authenticity.

Testate: A person who dies with a Will is said to have died testate. In this case, the validity of the will is determined by a probate process that ensures the distribution of the estate according to the terms and conditions of the Will.

Intestate: A person who dies without a Will is said to have died intestate. In this case, a person is appointed by a probate court to receive all claims against the estate, pay creditors and then distribute all remaining property in accordance with the laws of the state.

Advantages of Probate:

- Ensure disposition of estate of the decedent according to his/her will;
- Helps to distribute decedent's assets to heirs in an orderly manner;
- Protect creditors by ensuring payments of debt;

Disadvantages of Probate:

- Probate process involves considerable probate costs including court fees etc.
- Probate is a time consuming and lengthy process.
- Probate process involves publicity and thus compromises privacy of decedent and heirs.

Estate planning Tools available to avoid Probate Process:

There are several ways to avoid probate process and the challenges associated with it. These include:

Joint ownership: In joint ownership, the assets with the right of survivorship are automatically transferred to the surviving joint owner or owners. By contrast, under ***Sole ownership***, the ownership of assets is transferred according to decedent's will through a probate process.

Partnerships

Living trusts: In trusts, assets are transferred according to the terms of the trust deed.

Retirement plans

Life insurance: In life insurance, assets are transferred according to the provisions of the life insurance contract.

2.2 Legal Systems, Forced Heirship, and Marital Property Regimes

The disposition of a Will varys depending on a country's legal system. Different types of legal system include:

Common law: Under common law system, abstract laws are derived from specific cases i.e. law is developed by judges through decisions of courts and similar tribunals (called case law), rather than through legislative statutes or executive action. In a common law, the testator has freedom regarding disposition by a will. Common law system recognizes trusts.

Civil law: Under civil law system, general, abstract rules or concepts are applied to specific cases i.e. law is developed primarily via legislative statutes or executive action. In a civil law, the testator has ***no*** freedom regarding disposition by a will. Civil law system may not recognize trusts (particularly foreign trusts). Civil law system has following regimes:

A. **Forced Heirship rules:** Under Forced Heirship rules, children (including estranged or conceived outside of marriage) have the right to a fixed share of a parent's estate.

- The forced Heirship claim can be avoided by gifting or donating assets to others during the lifetime to reduce the value of the final estate upon death.
- ***Claw-back provisions***: Under claw-back provisions when the remaining assets in the estate are not sufficient to satisfy claims of heirs, the lifetime gifts are included back to the estate to estimate share of the child or the claim may be recovered from the recipient of the lifetime gifts.
- Under civil law forced heirship regimes, spouses also have similar guaranteed inheritance rights.

B. **Community property regimes:** Under the community property rules, each spouse has a right to half (50%) of the estate (marital or community property) i.e. ownership of one-half of the community property automatically passes to the surviving spouse whereas the ownership of the other half is transferred by the will through the probate process.

- Under community property regimes, marital assets do not include gifts and inheritances received before and after marriage.
- Assets that are not part of marital property are considered as part of total estate for forced heirship rule purposes.
- When a country has both community rights and forced heirship rules, the surviving spouse has a right to receive the ***greater*** of his/her share under community property or forced Heirship rules.

C. Separate property regimes: Under this regime, the property can be owned and controlled by each spouse separately and independently and each spouse has a right to dispose off estate according to their wishes.

Sharia law: It is the law of Islam, based on the teachings of Allah and the acts and sayings of Prophet Muhammad as found in the Qur'an and the Sunnah. It has many variations but it is quite similar to civil law systems, particularly in regard to estate planning.

Practice: Example 1, Volume 2, Reading 30.

2.3 Income, Wealth, and Wealth Transfer Taxes

Types of Tax: Generally, taxes are levied in one of four general ways:

1) **Tax on income** *e.g. interest income or dividends;*
2) **Tax on spending** e.g. sales taxes;
3) **Tax on wealth:** It is the tax levied on the principal value of real estate, financial assets, tangible assets etc, on annual basis. It is also known as *net worth tax* or *net wealth tax*.
4) **Tax on wealth transfers** e.g. tax on gifts made during one's lifetime, bequests upon one's death etc. Taxes on wealth transfer may be imposed on the transferor or the recipient. Gifts and inheritances may not be taxed depending on the jurisdiction. In addition, the tax rate varies depending on the relationship between the transferor and the recipient (e.g. transfers to spouses are often tax exempt).

Primary means of Transferring Assets include:

1) **Inter vivos or Lifetime gratuitous transfers:** Gifts made during one's lifetime is referred to as Lifetime gratuitous transfers or Inter vivos transfer. The term "***gratuitous***" means giving something with a purely donative intent. Taxes on gifts vary depending on the jurisdiction as well as on various factors including:

- Residency or domicile of the donor;
- Residency or domicile of the recipient;
- Tax status of the recipient (e.g. nonprofits);
- Type of asset (moveable versus immoveable);
- Location of the asset (domestic or foreign);

2) **Testamentary gratuitous transfer:** Bequeathing or transferring assets upon one's death is referred to as testamentary gratuitous transfer from the perspective of the donor and inheritance from the perspective of the recipient. The taxation of testamentary transfers depends on factors including:

- Residency or domicile of the donor;
- Residency or domicile of the recipient;

- Tax status of the recipient (e.g. nonprofits);
- Type of asset (moveable versus immoveable);
- Location of the asset (domestic or foreign);

Practice: Example 2 & 3, Volume 2, Reading 30.

3. CORE CAPITAL AND EXCESS CAPITAL

A **life balance sheet** reflects an investor's assets and liabilities and equity, both explicit and implicit.

On the left-hand side of the life balance sheet are an investor's assets. Assets include:

- **Explicit assets:** These include financial assets (e.g. stocks and bonds), real estate, and other property that can be easily liquidated.
- **Implied assets:** These include PV of one's employment capital (known as human capital or net employment capital) and expected pension benefits.

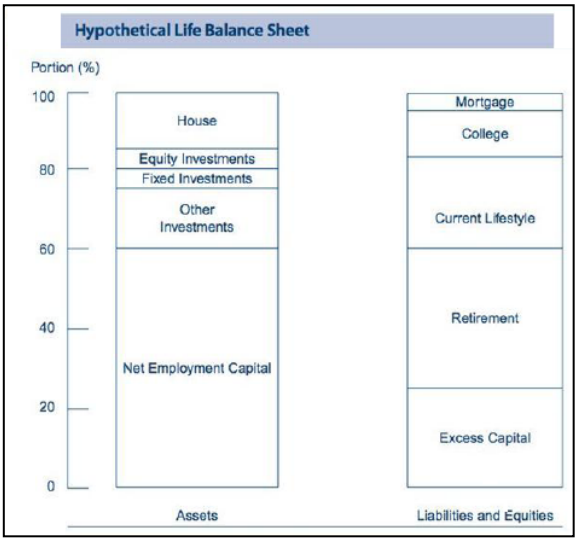
On the right-hand side of the life balance sheet are an investor's liabilities and equity. Liabilities include:

- **Explicit liabilities** i.e. mortgages, or margin loans.
- **Implied liabilities** i.e. capitalized value of the investor's desired spending goals (e.g. providing for a stable retirement income, funding children's education, keeping a safety reserve for emergencies, etc.).

Core capital: The minimum amount of capital required by a person to maintain his/her lifestyle, to meet spending goals, and to provide sufficient safety reserves for meeting emergency needs is called core capital. The core capital should be invested in a balanced mix of traditional, liquid assets. It can be estimated using mortality tables (discussed below) or Monte Carlo analysis.

Excess capital: Any capital in excess of the core capital is called excess capital which can be safely transferred to others without jeopardizing investor's desired lifestyle.

Discretionary wealth or Excess capital
= Assets – Core capital



3.1 Estimating Core Capital with Mortality Tables

The amount of core capital using Mortality table can be estimated in two ways i.e.

1) By calculating PV of the expected spending over one's remaining life expectancy.

- However, core capital based on life expectancy may underestimate the amount actually needed because the life expectancy is just an average and may vary e.g. a mortality table assumes that once an individual reaches the age of 100, his/her probability of surviving one more year is 0%; but, a person may live beyond 100.

2) By calculating expected future cash flows by multiplying each future cash flow needed by its corresponding probability, or survival probability. When more than one person is relying on core capital, the probability of survival in a given year is a joint probability which is estimated as follows (assuming the individual probability of survival of each person is independent of each other):

p (Survival) = p (Husband survives) + p (Wife survives) – [p (Husband survives) × p (Wife survives)]

Where, p (Survival) = Probability that either the husband or the wife survives or both survive.

- The probability of survival decreases as the age of the individual increases.

NOTE:

Under a more conservative approach, we may assume that both husband and wife survive throughout the forecast investment horizon instead of estimating their combined survival probability each year.

Core Capital = Sum of each year's present value of expected spending = $\sum_{j-1}^{N} \frac{p(Survival_j) \times Spending_j}{(1+r)^j}$

Where,

$p(Survival_j) \times Spending_j$ =Expected cash flow (spending need) in year j ➔ Joint survival probability × Spending need for that year (i.e. annual spending)

r = ***risk-free discount rate*** used to find PV

- Nominal spending needs are discounted using nominal discount rate.
- Real spending needs are discounted using real discount rate.

Mortality table: A mortality table shows expected remaining years of an individual based on reaching a certain age.

Individual and Joint Mortality Probabilities and Core Capital

Yrs	Husband		Wife		Combined Prob.	Real Annual Spending	Expected Real Spending	Present Value	Total
	Age	Prob.	Age	Prob.					
1	80	0.9355	69	0.9831	0.9989	200,000	199,780	195,863	195,863
2	81	0.8702	70	0.9649	0.9954	204,000	203,062	195,177	391,040
3	82	0.8038	71	0.9457	0.9893	208,080	205,854	193,981	585,021
4	83	0.7339	72	0.9249	0.9800	212,242	207,997	192,157	777,178
5	84	0.6686	73	0.9025	0.9677	216,486	209,494	189,745	966,923
6	85	0.6001	74	0.8785	0.9514	220,816	210,084	186,549	1,153,472
7	86	0.5327	75	0.8526	0.9311	225,232	209,714	182,569	1,336,041
8	87	0.4674	76	0.8252	0.9069	229,737	208,348	177,823	1,513,864
9	88	0.4048	77	0.7958	0.8785	234,332	205,861	172,255	1,686,119
10	89	0.3459	78	0.7646	0.8460	239,019	202,210	165,883	1,852,002
11	90	0.2912	79	0.7311	0.8094	243,799	197,331	158,706	2,010,708

Source: CFA Institute's curriculum.

NOTE: In the table above,

- Real annual spending = $200,000.
- Inflation rate = 2%.
- Real risk-free rate = 2%.

Expected Real spending
= Real annual spending × Combined probability
PV = Expected real spending / (1 + 2%) ^{t}

Interpretation of Mortality table:

- To the age of 80, the husband has a 93.55% probability of surviving one more year.
- To the age of 69, the wife has 98.31% probability of surviving one more year.
- To the age of 80 of husband and 69 of wife, the combined (joint) probability that one or both will survive for one year is 99.89%.
- To meet spending needs for ***five years***, the value of core capital needed today is $966,923.
- It is important to note that mortality table assumes that once an individual reaches the age of 100, his/her probability of surviving one more year is 0%.

Combined Probability of surviving for 7 years = 0.5327 + 0.8526 – (0.5327 × 0.8526) = 0.9311 = 93.11%.

Core capital needed for next 7 years = $1,336,041

Suppose, the family has a portfolio of $2,000,000; then,

The maximum amount that can be transferred to charity or others = $2,000,000 - $1,336,041 = $663,959

- It is important to understand that at this time, an investor should avoid giving the maximum amount of excess capital because the mortality table is based on averages only i.e. an investor may live longer than expected which implies that investor's portfolio may suffer from ***longevity risk*** i.e. risk of falling short of funds while an investor is still alive.

Important to Understand:

- The risk-free discount rate is used to find PV of spending needs because risk associated with spending needs is related to mortality risk, which is unrelated to market risk factors; hence, their beta is zero. Mortality risk is a non-systematic and non-diversifiable risk. However, it can be hedged using traditional life insurance contract.
- It is inappropriate to discount spending needs using expected return of the assets used to fund spending needs because the risk of the spending needs is essentially unrelated to the risk of the portfolio used to fund those needs.

NOTE:

Two persons jointly can maintain the same living standard at relatively low costs e.g. it has been observed that a couple can maintain the same living standard for 1.6 times the cost of one person.

3.1.1) Safety Reserve

Estimating core capital using Mortality table approach does not fully capture the capital market related risk, that is, the present value of spending needs underestimates the investors' true core capital needs because it is not guaranteed that in the long-run, the assets used to fund core capital needs will generate

returns greater than the risk-free rate. This underestimation can be adjusted by keeping a safety reserve to make the estate plan flexible and insensitive to short-term volatility.

Keeping a safety reserve is important for the following reasons:

1) It acts as a capital cushion to deal with uncertainty of capital markets, particularly when capital markets generate unusually poor returns that endanger the sustainability of the planned spending program.
2) It acts as a buffer to deal with uncertainty related to family's future commitments and thereby facilitates first generation to spend in excess of the spending needs that are pre-specified in the spending program.
3) Safety reserve allows investors to become insensitive to short-term capital market volatility so that they are able to adhere to investment strategy during volatile markets.

Practice: Example 4, Volume 2, Reading 30.

3.2 Estimating Core Capital with Monte Carlo Analysis

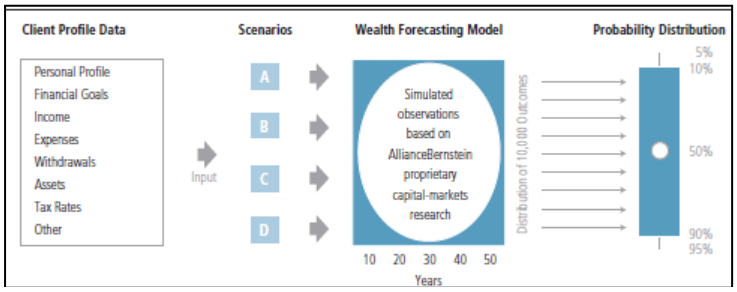
A Monte Carlo analysis is another approach to estimating core capital. Monte Carlo analysis is a method in which a computer generates a range of possible forecasted outcomes of core capital based on a number of simulation trials (e.g. 10,000 trials) by incorporating various inputs i.e. recurring spending needs, irregular liquidity needs, taxes, inflation etc.

- Under this approach, first of all, the desired spending needs and any bequests or gifts are estimated. Based on these cash flow needs, we determine the *size of the portfolio(i.e. amount of core capital) needed to meet expected inflation-adjusted spending needs over a particular time horizon with certain level of confidence* (say 95% level of confidence).
- Unlike mortality table approach, Monte Carlo method uses ***expected return*** of the assets used to fund spending needs rather than risk-free discount rate.

Interpretation of Estimated Core capital using 95% confidence level: The core capital (say $100 million) will be able to sustain spending needs in at least 95% of the simulated trials.

NOTE:

The higher the level of confidence, the greater the estimated core capital, all else equal.



Advantage of Monte Carlo Analysis:

- Estimating core capital using Monte Carlo analysis is a more appropriate approach than mortality table approach because it more effectively takes into account the capital market related risk. As a result, under a Monte Carlo analysis the investor may keep a small safety reserve compared to mortality table approach.
- Monte Carlo simulation analysis also provides the probability of falling short of the required amount of capital.

Sustainable spending rate: The spending rate at which an investor can safely spend without jeopardizing his standard of living ever in the future is known as sustainable spending rate.

Ruin probability: The probability that a given spending rate will deplete the portfolio of an investor before his/her death is called ruin probability. The ruin probability represents the probability of unsustainable spending. For example, if ruin probability is 8%, it indicates that there is 8% chance that the current spending pattern may deplete the investor's portfolio while he is still alive; or there is 92% confidence level that the current spending pattern may be sustainable.

- The level of spending and probability of ruin are positively correlated, all else equal i.e. the higher (lower) the level of spending, the higher (lower) the probability of ruin.
- The higher (lower) the ruin probability an investor is willing to accept, the less (more) core capital will be needed.

Core capital needed to maintain given spending pattern = Annual Spending needs / Sustainable Spending rate

Important Example:

Suppose an investor can spend $5 for each $100 of core capital or 5% of capital. Annual spending needs are $550,000.

Core capital needed to maintain given spending pattern = $550,000 / 0.05 = $11,000,000

Retirement Age	Median Age at Death	Hazard Rate		Real Spending Rate		
				2%	3%	4%
55	83.0	2.48	Probability of Ruin	1.8	6.3	14.0
60	83.4	2.96		1.5	5.2	11.6

Source: Adapted from CFA curriculum, 2011.
The table is based on arithmetic mean of 5%, geometric mean of 4.28% and standard deviation of 12%.

Example:

Suppose an investor is 55-years old. Total capital available to him to maintain his lifestyle is $1,000,000.

A. To maintain the current spending rate with at least 98% probability of success (i.e. portfolio will sustain the given spending rate) or approximately **1.8% probability of ruin, an investor can follow spending rate of $2 per $100 of assets or 2%.** With 2% spending rate,

The amount that can be withdrawn = 0.02 ($1,000,000) = 20,000

B. To maintain the current spending rate with at least 86% probability of success (i.e. portfolio will sustain the given spending rate) or **14% probability of ruin, an investor can follow spending rate of $4 per $100 of assets or 4%.** With 4% spending rate,

The amount that can be withdrawn = 0.04 ($1,000,000) = 40,000

The sustainability of a given spending rate is affected by the expected return and portfolio volatility that depends on asset allocation i.e.

The higher the return, the more sustainable the spending rate and consequently, the less core capital will be needed.

The higher the portfolio volatility, the less sustainable the spending rate for the following two reasons:

a) Volatility tends to diminish future accumulations even if an investor has no spending rule.

$$FV = (1 + R_G)^N = \prod_{n=1}^{N}(1 + R_n)$$
$$= (1 + R_1)(1 + R_2)(1 + R_3) \ldots (1 + R_N)$$

And

$$R_G \cong r - \frac{1}{2}\sigma^2$$

Where,
R_G = Geometric average return over period N.
σ = Volatility of arithmetic return.

- The higher the volatility, the lower the geometric average return and future accumulations, and consequently, the lower the sustainability.

b) Decrease in sustainability due to volatility is also related with the interaction of periodic withdrawals and return sequences i.e.

- When there are no periodic withdrawals, sequence of returns will have no effect on the future accumulations.
- When initial returns are poor due to liquidation of portfolio at relatively lower values, less capital is available to be invested at higher subsequent returns, leading to decrease in future accumulations.

Example:

Suppose the initial value of a portfolio is $100.

- Year 1 return = 50%
- Year 2 return = –50%

Portfolio value in Year 1 = $100 (1.50) = $150
Portfolio value in Year 2 = $150 (0.50) = $75

Now suppose that the investors withdrew $5 at the end of each year. The portfolio value in each year will be as follows:

Portfolio value in Year 1 = $100× (1.50) = $150 - $5 = $145
Portfolio value in Year 1 = $145 × (0.50) = $72.5 - $5 = $67.5

Practice: Example 5, Volume 2, Reading 30.

4. TRANSFERRING EXCESS CAPITAL

Unlike the legal structures related to wealth transfer that vary among countries, timing of wealth transfers depend on universal principles of tax avoidance, tax deferral and maximized compound return.

4.1 Lifetime Gifts and Testamentary Bequests

Discretionary wealth can be transferred in two ways:

- Donating it immediately; or
- Donating it during one's lifetime through a series of gratuitous transfers.

In jurisdictions where an estate or inheritance tax applies, gifting assets to others can be a valuable tool in estate planning. Gifts can help to reduce the taxable estate, resulting in decrease in estate or inheritance taxes.

4.1.1) Tax-Free Gifts

Some gifts are tax-free and/or have small annual exclusions if they fall below periodic or lifetime allowances. E.g. in the U.S., a parent may annually transfer $13,000 to each child or $26,000 from both parents tax-free. Similarly, in U.K., gifts up to £312,000 can be made without any tax.

The benefit of transferring wealth through gifting is that the donor is not obligated to pay any gift or estate tax on the capital appreciation on gifted assets; however, the appreciation on gifted assets is still subject to tax on investment returns (i.e. dividends and capital gains) irrespective of gifting.

In general, the relative after-tax value of a tax-free gift made during one's lifetime compared to a bequest that is transferred as part of a taxable estate is estimated as follows:

$$RV_{TaxFreeGift} = \frac{\textbf{Future after-tax value of tax-free gift}}{\textbf{Future after-tax value of a taxable transfer by bequest}} = \frac{[1 + r_g(1 - t_{ig})]^n}{[1 + r_e(1 - t_{ie})]^n(1 - T_e)}$$

Where,

T_e = Estate tax if the asset is bequeathed at death
r_g = pretax return to the gift recipient
r_e = pretax return to the estate making the gift
t_{ig} = Effective tax rates on investment returns on the gift recipient
t_{ie} = Effective tax rates on investment returns on the estate making the gift
n = Expected time until the donor's death

Interpretation: When **$RV_{TaxFreeGift} > 1.00$,** it indicates that gifting assets immediately is more tax efficient than leaving them in the estate to be taxed as bequest.

If the pretax return and effective tax rate of recipient is equal to that of donor, then

Relative value of the tax-free gift = 1 / (1 – Te)

4.1.2) Taxable Gifts

Some jurisdictions also impose gift or donation taxes in addition to estate or inheritance tax to mitigate the tax minimization strategy of tax-free gifts. However, making taxable gifts rather than leaving them in the estate to be taxed as a bequest also provides tax benefits.

The value of making taxable gifts rather than leaving them in the estate to be taxed as a bequest is estimated as follows:

$$RV_{TaxableGift} = \frac{\textbf{Future after-tax value of taxable gift}}{\textbf{Future after-tax value of a taxable transfer by bequest}} = \frac{[1 + r_g(1 - t_{ig})]^n(1 - T_g)}{[1 + r_e(1 - t_{ie})]^n(1 - T_e)}$$

Where,

T_g = Tax rate applicable to gifts. In addition, it is assumed that the recipient, NOT the donor, pays the gift tax.

Interpretation:

When **$RV_{TaxableGift} > 1.00$,** it indicates that gifting assets immediately is more tax efficient than leaving them in the estate to be taxed as bequest.

If both the gift and asset to be bequeathed have equal after-tax returns, then

Relative value of a taxable gift = (1 – T_g) / (1 – T_e)

- The gifting can be tax efficient for an investor if the gift tax rate is less than or equal to estate tax.
- Commonly, assets that are expected to appreciate in future should be gifted rather than leaving them in the estate to be taxed as a bequest due to greater future tax liability at death. By contrast, lower return assets should be bequeathed.
  - However, for a valid comparison of gift versus the bequest, the risk of gift and bequests must be held constant unless the high return asset is valued at some discount to its intrinsic value.
- When the recipient is subject to gratuitous transfer tax, the PV of future inheritance tax obligation = Gift tax.
- When the marginal tax rate of gift recipient (t_{ig}) < Marginal tax rate of estate (t_{ie}) ➔ the gift can provide tax benefit as future after-tax value of taxable gift will be greater than that of future after-tax value of taxable bequest.

Another tax minimization strategy for managing an aggregate family portfolio is to gift assets with higher expected returns to the second generation so that the first generation only holds assets with lower expected returns. However, higher expected return is associated with higher risk as well and thus it is not guaranteed that second generation's portfolio will have a higher growth rate. Nevertheless, this strategy may provide tax advantage to investors.

For details, read Exhibit 5 and paragraph below it.

4.1.3) Location of the Gift Tax Liability

- In case of a cross-border gift, both the donor and recipient may be subject to gift tax in their respective home countries.
- Gifting is more tax-advantageous in jurisdictions where gift tax is paid by the donor rather than the gift recipient (i.e. recipient's estate will either not be taxed or taxed at a lower rate), because gift tax paid by the donor ultimately reduces the size of donor's taxable estate, resulting in decrease in donor's estate tax.

The relative after-tax value of the gift when the donor pays gift tax and when the recipient's estate will not be taxable (assuming $r_g = r_e$ and $t_{ig} = t_{ie}$):

$$RV_{TaxableGift} = \frac{FV_{Gift}}{FV_{Bequest}} = \frac{\left[1 + r_g(1 - t_{ig})\right]^n (1 - T_g + (T_g T_e \times g/e)}{[1 + r_e(1 - t_{ie})]^n (1 - T_e)}$$

- $T_g T_e$ = Tax benefit created from decrease in size of taxable estate by the amount of gift tax. This tax benefit can be viewed as ***partial gift tax credit***.

Size of the partial gift credit = Size of the gift × $T_g T_e$

- The longer the time period between gift and bequest, the greater the size of the partial gift credit due to compounding effect.

Example: Suppose,

- Value of taxable estate is $500 million.
- Amount of gift = $100 million.
- Gift tax and Estate tax rate = 40%.

	Gift	Bequest
Gift	100 Million	0
Gift Tax	100 (0.40) = 40 Million	0
Total Disbursement	**140 Million**	0
Taxable Estate	500 – 140 = 360 Million	500 Million
Estate Tax	360× 0.40 = 144 Million	500 × 0.40 = 200 Million
Net After-Tax Amount	360 – 144 = 216 Million	500 – 200 = 300 Million
After-Tax Estate Plus Gift	216 + 100 = 316 Million	300 Million

Tax savings from gifting = 100 million × 0.45 × 0.45
= 16 million ➔ (i.e. 316 million – 300 million)

NOTE:

In some jurisdictions, the donor has the primary liability to pay transfer tax whereas the recipient has secondary tax liability if the donor is unable to pay. In this case, if the recipient has limited liquid assets available, he/she may face liquidity constraints to meet the tax liability.

In summary: Gift is more tax efficient when:

1) The gift is tax free but the bequest is subject to a heavy tax rate.
2) Investment returns on gifted assets are taxed at a much lower tax rate compared to bequeathed assets.
3) The time period between gift and bequest is longer, creating greater compounding effect.

Practice: Example 6, Volume 2, Reading 30.

4.2 Generation Skipping

Transferring capital that is excess for both the first and second generations directly to the third generation or beyond may facilitate investors to reduce transfer taxes by avoiding double taxation i.e. once at the time of transfer from 1st to 2nd generation and then at the time of transfer from 2nd to 3rd generation(where permitted).

The relative value of generation skipping to transfer capital that is excess for both the first and second generations = 1 / (1 – T_1)

Where,

T_1 = Tax rate of capital transferred from the first to the second generation.

NOTE:

To mitigate this strategy, some jurisdictions impose a special generation skipping transfer tax in addition to usual transfer tax.

Example:

Suppose an investor has $100 million of excess capital for both 1st and 2nd generation that can be transferred to 3rd generation. Tax rate on the recipient of a gift or inheritance is up to 45% and the real return on capital is 5%.

Case 1:

When the excess capital is transferred from 1st to 2nd generation in 10 years and then from 2nd to 3rd generation in 25 years.

Future value of the excess capital
= 100 million × [(1.05) ^{10} (1 – 0.45) (1.05) ^{25} (1 – 0.45)]
= $166.86 million

Case 2:

When the excess capital of $100 million is directly transferred to the 3rd generation.
Future value of the excess capital
= 100 million × [(1.05) ^{35} (1 – 0.45)]
= $303.38 million

4.3 Spousal Exemptions

In most jurisdictions, gifts from one spouse to another are fully excluded from gift taxes. In addition, some jurisdictions allow investors to transfer wealth without tax consequences upon the death of the first spouse. In effect, a couple has two exclusions available i.e. one for each spouse. For example, in U.K., a person can transfer estate of less than £312,000 without any inheritance tax liability. But since such spousal exemptions are only allowed at the time of death of first spouse, it is recommended that investors should take advantage of first exclusion upon the death of the first spouse by transferring the exclusion amount to someone (e.g. children). This strategy will help to reduce the total taxable value of estate, resulting in decrease in estate tax.

4.4 Valuation Discounts

For publicly traded companies, tax is applied on the fair market value of the asset being transferred. By contrast, assets of privately held companies are subject to illiquidity discount (due to lack of liquidity) and lack of control discount (due to minority interest) and thus, these assets are discounted at a higher cost of capital. Hence, transferring assets that are subject to valuation discounts (and consequently, small estate value) help to reduce gift and estate taxes because valuation discounts reduce the basis of transfer tax.

- The size of the illiquidity discount is inversely related to the size of the company and its profit margin.
- Lack of control discount is not independent of illiquidity discount because minority interest positions are less marketable and thus have lower liquidity compared to control positions.
- It is important to note that *Total valuation discount is NOT equal to illiquidity discount plus lack of control (or minority interest) discount.*

Family limited partnerships: High net worth individuals (HNWIs) may invest assets in a family limited partnership (FPL) to create illiquidity and lack of control discounts to reduce transfer tax. FLPs that comprise of privately held companies assets have greater valuation discounts and the associated tax benefit compared to FLPs comprising of cash and marketable securities.

Non-tax Benefits of FLPs:

- Pooling together the assets of multiple family members in FLPs facilitate the participating family to have access to certain assets, which have minimum investments requirements and require large investment (e.g. hedge funds, venture capital etc.)
- Investing in FLPs allows the participating family to have equitable share in the gains and losses i.e. on pro-rata basis.

4.5 Deemed Dispositions

In some jurisdictions, bequests are treated as "***deemed dispositions***" which means that the transfer is treated as if the property (estate) were sold. Under Deemed dispositions, any previously unrecognized capital gains on the bequest are taxed as capital gains i.e. the tax is levied only on the value of unrecognized gains rather than on the total principal value.

4.6 Charitable Gratuitous Transfers

In most jurisdictions, gifts to charitable organizations are fully excluded from gift taxes. Wealth transfers to not-for-profit or charitable organizations have the following three forms of tax relief under most jurisdictions.

1) Donations to charitable organizations are not subject to gift transfer tax.
2) Donations to charitable organizations are income tax deductible.
3) Donations to charitable organizations are not subject to taxes on investment returns.

The relative after-tax future value over n years of a charitable gift compared to a taxable bequest is estimated as follows:

$$RV_{CharitableGift} = \frac{FV_{CharitableGift}}{FV_{Bequest}}$$

$$= \frac{(1+r_g)^n + T_a\left[1+r_e(1-t_{ie})\right]^n(1-T_e)}{\left[1+r_e(1-t_{ie})\right]^n(1-T_e)}$$

Where, T_{oi}= Tax rate on ordinary income. It represents the current income tax benefit associated with a charitable transfer.

Practice: Example 7, Volume 2, Reading 30.

5. ESTATE PLANNING TOOLS

Common estate planning tools include:

1) Trusts (a common law concept)
2) Foundations (a civil law concept)
3) Life insurance
4) Partnerships

5.1 Trusts

A trust is a real or personal property held by one party (trustee) for the benefit of another (beneficiaries) or oneself (grantor).

Grantor: The person who makes the trust is called "Grantor" or "Settler".

Trustee: The person who manages the trust assets and performs the functions of the trust according to the terms of the trust is called "Trustee". The trustee may be the grantor or may be a professional or institutional trustee. There may be one or several trustees. Trustees have legal ownership of the trust property.

Beneficiary: The person or persons who will benefit from the creation of trust is called "beneficiary". The beneficiary is not the legal owner of the trust assets. The beneficiary is entitled to receive income from the trust.

A. A trust can be either revocable or irrevocable:

- ***Revocable trust:*** A revocable trust is a trust in which the grantor retains control over the trust's terms and assets i.e. any terms of the trust can be amended, added to or revoked by the grantor during his/her lifetime. In a revocable trust arrangement, the grantor is considered to be the owner of the assets for tax purpose; hence, the grantor (not trust) is responsible for any tax related or other liabilities associated with trust's assets. Thus, in a revocable trust, trust assets are not protected from the creditors' claims against a settlor.
- ***Irrevocable trust:*** An irrevocable trust is a trust that can't be amended or revoked once the trust agreement has been signed. In an irrevocable trust, the trustee is considered to be the owner of the assets; hence, the trustee (not settlor) may be responsible for tax payments and trust assets are protected from the creditors' claims against a settlor.

It must be stressed that in trust structures, assets are transferred according to the terms of the trust rather than the settler's will.

B. Trusts can be structured to be either fixed or discretionary:

- **Fixed Trust:** In a fixed trust, the amount and timing of distributions are pre-determined by the settlor (i.e. are fixed) and are documented in the trust documentation; they are not determined by the trustee.
- **Discretionary Trust:** In a discretionary trust, as the name implies, the trustee has the discretion to determine the amount and timing of distributions based on the investor's general welfare.

Non-binding Letter of Wishes: It is a document through which the settlor can make his/her wishes known to the trustee in a discretionary trust.

Objectives of using a Trust Structure:

1) **Control:** Transferring assets via trust structure allows the settlor to transfer assets to beneficiaries without losing control on those assets.

2) **Asset protection:** Assets transferred through irrevocable trust structure are protected from the creditors' claim against the settlor. Similarly, in discretionary trusts, the assets are protected from creditors' claims against the beneficiaries. In some jurisdictions, the trust assets are also protected from forced heirship claims.

- However, in order to effectively protect assets, the settlor must establish these trust structures before the claim or before the pending claim.

3) **Tax reduction:** Trusts can be used to reduce taxes because the income generated by trust assets may be taxed at a lower/favorable tax rate. In an irrevocable, discretionary trust, the distribution in a particular tax period to the beneficiary may be determined by the trustee depending on the beneficiary's tax situation. Similarly, a trust can be established in a jurisdiction with a low tax rate or even no taxes.

4) **Avoidance of probate process:** By transferring legal ownership of the assets to the trustee, the settlor can

- Avoid the lengthy probate process.
- Avoid the legal expenses associated with probate process.
- Avoid the potential challenges and publicity associated with probate process.

5.2 Foundations

Foundations are typically established to hold assets for a particular purpose, e.g., to fund education, hospitals, or to help the needy etc. It is a civil law system concept. When a foundation is established, funded, and managed by an individual or family, it is referred to as Private foundation.

- Like trusts, the objectives of using foundations include control, avoidance of probate, asset protection, and tax reduction.
- Unlike trusts, a foundation is a legal person.

5.3 Life Insurance

In life insurance, the policy holder transfers assets (called premium) to an insurer who is contractually obligated to pay death benefit proceeds to the beneficiary.

Like trusts, life insurance provides tax and estate planning benefits. These benefits are as follows:

- Death benefit proceeds to life insurance beneficiaries are exempt from taxes in many jurisdictions.
- Life insurance facilitates the policy holder to transfer assets directly to policy beneficiaries outside the lengthy and complex probate process.
- Assets transferred (i.e. premium) reduce the value of policy holders' taxable estate, leading to decrease in estate tax. In addition, premium is not subject to a gratuitous transfer tax.
- In some jurisdictions, insurance premiums can grow tax free as they are subject to deferred taxation.
- Life insurance is also regarded as "***liquidity planning technique***" because the death benefit proceeds received by beneficiaries may help them pay inheritance tax, particularly when inherited assets are illiquid.
- Premiums under life insurance are protected from forced heirship claims because the forced heirship rule does not apply on life insurance proceeds.
- Premiums under life insurance are also protected from creditors' claims against the policy holder.

The policy holder can assign the discretionary trust as a policy for the beneficiary when the policy beneficiaries may be unable to manage the assets themselves (e.g. minors, disable persons or spendthrifts etc.)

5.4 Companies and Controlled Foreign Corporations

Controlled foreign corporation (CFC) is a company in which the taxpayer has a controlling interest (according to the home country law) but the company is located outside a taxpayer's home country.

- Transferring assets in a CFC helps to defer taxes on earnings of the company until the earnings are actually distributed to shareholders or the company is sold. To further minimize tax, a CFC can be established in a jurisdiction with a low tax rate or even no taxes.
- However, in some jurisdictions, company's earnings are treated as "***Deemed Distribution***" to mitigate this tax minimization; that is, company's earnings are taxed as if earnings were distributed to shareholders even though no earnings are distributed.

6. Cross-Border Estate Planning

When assets of an investor are located in multiple jurisdictions, they may have various challenges associated with their transfer upon owner's death. For example, transferring ownership of assets outside an investor's home country may be subject to multiple taxes i.e. from both the home country and country in which the asset is located.

In addition, when the assets that located in a single jurisdiction are transferred to heirs located outside the home country (through a will, gift, or other strategy), the ownership transfer may have various legal and tax related challenges.

6.1 The Hague Conference

The Hague Conference on Private International Law is an intergovernmental organization whose objective is to promote convergence of private international law by:

- Simplifying and/or standardizing legal processes.
- Promoting international trade.

6.2 Tax System

Taxing authority of a country is determined by its tax system. There are two types of tax systems.

1) **Source jurisdiction or territorial tax system:** A tax system in which a country taxes income as a source within its borders is called source jurisdiction. Under this jurisdiction, the tax is levied depending on the

relationship between the country and the source of the income.

Example of source jurisdiction: Countries that levy income tax.

2) **Residence Jurisdiction:** A tax system in which a country imposes tax based on residency of the taxpayer is called residence jurisdiction. Under residence jurisdiction, all income, irrespective of its source is subject to taxation. In other words, the tax is imposed depending on the relationship between the country and the recipient of income. It is the most common tax system.

6.2.1) Taxation of Income

Under residence jurisdiction, the tax is imposed on a person's worldwide income.

- In most countries, residence jurisdiction is imposed on non-citizen residents, but not citizens who are non-resident.
- In U.S., residence jurisdiction is imposed on everyone, regardless of residency.

Residency tests differ between countries. However, some typical ***subjective standards*** used to determine residency include the degree of an individual's social, family and economic ties to the jurisdiction e.g. whether a person owns a property in the country, whether a person works in the country etc.

Objective standards used to determine residency include number of days a person was physically present in the country during the relevant tax period.

6.2.2) Taxation of Wealth and Wealth Transfers

Like income, wealth and wealth transfers may be subject to tax based on source or residence jurisdictions.

- Under source jurisdiction, wealth or wealth transfer is taxed as economically sourced within a particular country e.g. real estate.
- Under residence jurisdiction, tax is applied on worldwide wealth or wealth transfer irrespective of its source (except for real estate that is located abroad).

6.2.3) Exit Taxation

A tax that is applied when an individual gives up his or her citizenship or terminates his/her residency in a country is called exit taxation. This tax is imposed to avoid loss of tax revenue resulting from such repatriation.

The exit tax is applied as ***"deemed disposition"*** i.e. exit tax is charged on unrealized gains accrued on assets that are removed from taxing jurisdiction. In addition, the exit tax may levy income tax on income earned over a fixed period post-expatriation. That fixed period is known as ***"Shadow Period".***

6.3 Double Taxation

Various tax systems can create tax conflicts in which two countries may claim to have taxing authority over the same income or assets. There are three forms of tax conflicts:

1) **Residence-residence conflict:** When two countries claim residence of the same individual, such that the individual's worldwide income is subject to taxation by both countries, is called residence-residence conflict. This conflict may arise when a person is a resident of both countries.

2) **Source-source conflict:** When two countries claim source jurisdiction of the same asset, it is called source-source conflict. This conflict may arise when income earned on investments are located in country A but are managed from country B.

3) **Residence-source conflict:** When one country claim residence jurisdiction on an individual's worldwide income whereas other country claims source jurisdiction, it is called residence-source conflict. This conflict may arise when a person is a resident of country B but has investment property in country A. It is the most common source of double taxation; and it is most difficult to mitigate using tax planning tools.

6.3.1) Foreign Tax Credit Provisions

Commonly, a source country is considered to have primary jurisdiction to impose tax on income within its borders. As a result, any double taxation relief to taxpayers (if provided) is typically provided by the residence country using one or more of the following methods:

1) **Credit method:** In the credit method, the tax liability is greater of the tax liability due in either the residence or source country.

$$T_{CreditMethod} = Max\ [T_{Residence}, T_{Source}]$$

Amount of tax credit received by taxpayer = Amount of taxes paid to the source country

2) **Exemption method:** In an exemption method, tax is imposed at the foreign-sourced income only i.e.

$$T_{ExemptionMethod} = T_{Source}$$

3) **Deduction method:** Under the deduction method, the residence country provides a tax deduction rather a credit or exemption. This implies that in deduction method, a taxpayer is subject to both taxes; however, the total tax liability is less (i.e. not equal to sum of two taxes).

$$T_{DeductionMethod} = T_{Residence} + T_{Source} - T_{Residence}T_{Source}$$

- The deduction method produces the highest total tax liability compared to credit and exemption method.

Example:

Suppose that the tax imposed by a residence country on worldwide income is 40% whereas the tax imposed by foreign government on foreign-sourced income is 30%.

$T_{CreditMethod}$= Max [40%, 30%] ➔Tax-payer will pay 40%.

Out of 40%,

- 30% will be paid to foreign-government.
- 10% will be paid to domestic government.

$T_{ExemptionMethod}$ = 30% ➔ All of 30% will be collected by foreign government.

$T_{DeductionMethod}$ = 0.40 + 0.30 – (0.40 × 0.30) = 58%.

Out of 58%,

- 30% will be paid to foreign-government.
- 28% [i.e. 0.40 – (0.40 × 0.30)] will be paid to residence or domestic country.

6.3.2) Double Taxation Treaties

Instead of domestic tax laws (i.e. foreign tax credit, deduction or exclusion provisions), double taxation treaties can also be used to provide tax-payers relief from double taxation. Double taxation treaties may help to resolve residence-source and residence-residence conflicts but not source-source conflict.

Advantages of Double Taxation Treaties (DTTs):

- By mitigating double taxation, DTTs promote international trade and investment;
- By limiting source jurisdiction, DTTs help to resolve residence-source conflicts.
- DDTs facilitate exchange of information between countries.

The OECD Model Treaty is an example of double taxation treaty. Under OECD model, residence-source conflict can be resolved using exemption and credit method. Under the OECD Model Treaty,

- Source jurisdiction is imposed on interest and dividend income.
- Residence jurisdiction is imposed on capital gains.
- However, capital gains on immoveable property are subject to source jurisdiction (i.e. where the property is located).

An individual residency can be determined based on:

- His/her domicile
- Residence
- Place of management etc.

But, if the above standards lead to a dual-residency status, the OECD model provides the following criteria to determine the residency i.e.

i. Permanent home
ii. Center of vital interests
iii. Habitual dwelling
iv. Citizenship

Practice: Example 8, Volume 2, Reading 30.

6.4 Transparency and Offshore Banking

Tax avoidance refers to minimizing taxes using legal loopholes in the tax codes e.g. using tax minimization strategies.

Tax evasion refers to avoiding or minimizing taxes through illegal means e.g. misreporting (i.e. understating taxable income) or hiding relevant information from tax authorities.

Offshore banking centers provide various financial services to clients located in other countries. Use of offshore banking services should *not* be regarded as tax evasion practice.

Qualified Intermediaries (QIs): A Qualified Intermediary (QI) is any foreign intermediary (or foreign branch of a U.S. intermediary) that has entered into a qualified intermediary withholding agreement. Under this agreement, QIs are required to maintain records of the names of beneficial owners of U.S. securities and provide this information upon request. However, QIs are not obligated to categorically provide names of U.S. customers. This facilitates QIs to preserve confidentiality of their non-U.S. customers but may provide information about U.S. customers to U.S. authorities upon request.

Practice: End of Chapter Questions from CFA Institute's Program Curriculum & FinQuiz Question-bank (Item-sets & Questions)