

2022 CFA[®]

Exam Prep

SchweserNotes[™]

Alternative Investments, Private Wealth
Management, and Institutional Investors

LEVEL III BOOK 4

 KAPLAN[®] SCHWESER

Book 4: Alternative Investments, Private Wealth Management, and Institutional Investors

SchweserNotes™ 2022

Level III CFA®



SCHWESERNOTES™ 2022 LEVEL III CFA® BOOK 4: ALTERNATIVE INVESTMENTS, PRIVATE WEALTH MANAGEMENT, AND INSTITUTIONAL INVESTORS

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STUDY SESSION 9

The topical coverage corresponds with the following CFA Institute assigned reading:

19. Hedge Fund Strategies

The candidate should be able to:

- a. discuss how hedge fund strategies may be classified.
- b. discuss investment characteristics, strategy implementation, and role in a portfolio of **equity-related** hedge fund strategies.
- c. discuss investment characteristics, strategy implementation, and role in a portfolio of **event-driven** hedge fund strategies.
- d. discuss investment characteristics, strategy implementation, and role in a portfolio of **relative value** hedge fund strategies.
- e. discuss investment characteristics, strategy implementation, and role in a portfolio of **opportunistic** hedge fund strategies.
- f. discuss investment characteristics, strategy implementation, and role in a portfolio of **specialist** hedge fund strategies.
- g. discuss investment characteristics, strategy implementation, and role in a portfolio of **multi-manager** hedge fund strategies.
- h. describe how factor models may be used to understand hedge fund risk exposures.
- i. evaluate the impact of an allocation to a hedge fund strategy in a traditional investment portfolio.

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20. Asset Allocation to Alternative Investments

The candidate should be able to:

- a. explain the roles that alternative investments play in multi-asset portfolios.
- b. compare alternative investments and bonds as risk mitigators in relation to a long equity position.
- c. compare traditional and risk-based approaches to defining the investment opportunity set, including alternative investments.
- d. discuss investment considerations that are important in allocating to different types of alternative investments.
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- d. identify and formulate client goals based on client information.
- e. evaluate a private client's risk tolerance.
- f. describe technical and soft skills needed in advising private clients.
- g. evaluate capital sufficiency in relation to client goals.
- h. discuss the principles of retirement planning.
- i. discuss the parts of an investment policy statement (IPS) for a private client.
- j. prepare the investment objectives section of an IPS for a private client.
- k. evaluate and recommend improvements to an IPS for a private client.
- l. recommend and justify portfolio allocations and investments for a private client.
- m. describe effective practices in portfolio reporting and review.
- n. evaluate the success of an investment program for a private client.
- o. discuss ethical and compliance considerations in advising private clients.
- p. discuss how levels of service and range of solutions are related to different private clients.

The topical coverage corresponds with the following CFA Institute assigned reading:

22. Topics in Private Wealth Management

The candidate should be able to:

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- e. explain portfolio tax management strategies and their application.
- f. discuss risk and tax objectives in managing concentrated single-asset positions.
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- h. describe strategies for managing concentrated positions in privately owned businesses and real estate.
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The topical coverage corresponds with the following CFA Institute assigned reading:

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- b. discuss investment policy of institutional investors.
- c. discuss the stakeholders in the portfolio, the liabilities, the investment time horizons, and the liquidity needs of different types of institutional investors.
- d. describe the focus of legal, regulatory, and tax constraints affecting different types of institutional investors.
- e. evaluate risk considerations of private defined benefit (DB) pension plans in relation to 1) plan funded status, 2) sponsor financial strength, 3) interactions between the sponsor's business and the fund's investments, 4) plan design, and 5) workforce characteristics.
- f. prepare the investment objectives section of an institutional investor's investment policy statement.
- g. evaluate the investment policy statement of an institutional investor.
- h. evaluate the investment portfolio of a private DB plan, sovereign wealth fund, university endowment, and private foundation.
- i. describe considerations affecting the balance sheet management of banks and insurers.

The following is a review of the Alternative Investments for Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #19.

READING 19: HEDGE FUND STRATEGIES

Study Session 9

EXAM FOCUS

This reading describes some of the most important categories of hedge fund strategies and examines their investment characteristics and how these strategies are implemented. First, we discuss some unique characteristics of hedge funds and consider how various strategies might be categorized. Then, investment characteristics and implementation strategies are presented for six major hedge fund strategy categories: equity-related, event-driven, relative value, opportunistic, specialist, and multi-manager strategies. Next, we introduce a model for understanding the risk exposures of each of these strategies. The final LOS assesses the contribution of each hedge fund strategy to the return and risk of conventional stock and bond portfolios.

MODULE 19.1: OVERVIEW OF HEDGE FUND STRATEGIES



Video covering this content is available online.

Introduction

Hedge funds represent an important subgroup of alternative investment opportunities; however, they do come with many advantages and disadvantages.

Key features that distinguish hedge funds from traditional investments include:

- Lower regulatory and legal constraints.
- Flexibility to use short selling and derivatives.
- A larger investment universe.
- Aggressive investment exposures.
- Comparatively free use of leverage.
- Liquidity constraints for investors.
- Lack of transparency.
- Higher cost structures.

Perhaps the largest question to be answered is whether the high expense levels of hedge funds is made worthwhile by the return and diversification that hedge funds are intended to deliver.

Some asset managers seek out hedge funds as a source of alpha, which is never easy to come by. Others see hedge funds as a way to access top investing talent.

LOS 19.a: Discuss how hedge fund strategies may be classified.

Classifications of Hedge Fund Strategies

Hedge fund strategies are categorized based on the kinds of securities they invest in, the trading strategy used, and the kinds of risk exposures taken.

There are numerous ways to classify hedge funds, but in this topic review, we use the following six strategy categories:

1. *Equity related.* These fund strategies focus on stocks, and hence the primary source of risk is equity risk. Amongst this category of strategies are several subtypes, including long/short equity, dedicated short bias, and equity market neutral.
2. *Event driven.* These hedge fund strategies relate to corporate actions such as governance activities, mergers, acquisitions, bankruptcies, and other major business events. The main risks of these strategies are event risk; the possibility that outcomes will not unfold as expected, including the failure of a merger, credit downgrades, or bankruptcy. In the following LOSs, the event-driven hedge fund strategies that we will examine are merger arbitrage and distressed securities.
3. *Relative value.* These hedge fund strategies seek to profit from the relative valuation differences between securities. Credit and liquidity risks often complicate these strategies, because the valuation differences being exploited often relate to securities with different credit quality or liquidity. Two relative value strategies that will be considered further are fixed income arbitrage and convertible bond arbitrage.
4. *Opportunistic.* These strategies employ a top-down approach, often consider multiple asset classes, and vary with market conditions. The two opportunistic strategies that will be considered here are global macro and managed futures.
5. *Specialist.* These hedge fund strategies often require specialized market expertise or knowledge. Often the risks of these strategies arise due to exposure to specific sectors or unusual securities. The two such specialist strategies we will consider in this topic review are volatility strategies and reinsurance strategies.
6. *Multi-manager.* These strategies use other hedge fund strategies as building blocks, combining different strategies together and rebalancing exposures over time. The two types of multi-manager hedge funds we will consider are multi-strategy funds and funds-of-funds.



MODULE QUIZ 19.1

To best evaluate your performance, enter your quiz answers online.

1. A convertible bond arbitrage strategy is *most likely* classified as:
 - A. a specialist strategy.
 - B. an event-driven strategy.
 - C. a relative value strategy.
2. A managed futures hedge fund strategy is *most likely* classified as:
 - A. an opportunistic strategy.
 - B. a specialist strategy.
 - C. a relative value strategy.



MODULE 19.2: EQUITY, EVENT-DRIVEN, AND RELATIVE VALUE STRATEGIES

Video covering this content is available online.

LOS 19.b: Discuss investment characteristics, strategy implementation, and role in a portfolio of equity-related hedge fund strategies.

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Equity-Related Hedge Fund Strategies

Equity-related hedge fund strategies focus primarily on stock markets, and the majority of their risk profiles involve equity-oriented risk. Within this equity-related category, long/short equity, dedicated short bias, and equity market neutral are the main strategies that will be discussed further.

Long/Short Equity

Long/short (L/S) equity hedge funds are straightforward to understand. The fund manager purchases (takes long positions in) stocks that they think will rise in value, and sells (takes short positions in) stocks that they believe will fall in value.

Investment Characteristics

When L/S equity managers combine long and short positions, the resulting portfolio has a beta (i.e., market exposure) equal to the sum of the positive and negative betas of the various long and short positions.

L/S equity hedge funds generally do not seek to *eliminate* market exposure entirely. L/S funds will typically have a 40%–60% net long exposure, which is beneficial considering that markets generally trend upward over time.

Many L/S equity managers aspire to provide returns comparable to that of a long-only fund but with half the amount of standard deviation.

Strategy Implementation

Because successful implementation of an L/S equity strategy requires managers to identify overpriced and underpriced stocks, the majority of L/S equity funds take a sector-specific focus, choosing stocks from a particular industry that they are familiar with. They may also use index funds to achieve a desired exposure. L/S funds that are comparatively market neutral may need to use leverage to achieve worthwhile returns.

Role in a Portfolio

The goal of most L/S equity managers is to attempt to source alpha from long and short exposures to single stocks, while also benefitting from a moderate overall long exposure.

When considering an investment in an L/S equity fund, one should consider whether the investment is worthwhile given the potentially high fees. Taking a traditional long-only equity position may be a more efficient way to achieve a comparable beta exposure.

Dedicated Short Selling and Short-Biased

As the name suggests, **dedicated short-selling** funds seek out securities that are overpriced in order to sell them short. These managers look for poorly managed companies, firms in declining market segments, or even firms with deceitful accounting. **Short-biased** managers use a similar strategy, except that the short position is somewhat offset by a long exposure.

One major challenge of being a short seller is that markets inevitably rise over time, which creates a tendency toward negative returns for shorts.

A notable subset of short selling is **activist short selling**, in which the fund manager not only takes a short position in a stock, but also presents research that contends that the stock is overpriced.

Investment Characteristics

Managers using short-biased strategies as well as dedicated short-selling strategies primarily aim to produce a negative correlation with conventional securities. Compared to other hedge fund strategies, expectations of return for short strategies tend to be lower. Compared to L/S equity hedge funds with their balanced beta exposures, short strategy funds tend to have greater volatility.

Strategy Implementation

Hedge fund managers go “short” a security by borrowing the security, selling it at the current market price, and then (ideally) profit by repurchasing the same security later at a lower price in order to return it to the lender.

The most challenging part of profiting from shorting stocks is finding securities that are going to lose value. Managers use a bottom-up approach to identify firms with unprofitable business models, bad management, too much debt, or even shady accounting.

A dedicated short seller takes on no long stock exposure; rather, they carefully select stocks for a pure short exposure, typically 60%–120% short. A dedicated short manager who wishes to temper the fund’s market exposure will typically do this by holding cash.

Short-biased managers have a similar strategy; however, they may also take on some long exposure, while remaining net short, often 30%–60% net short.

For both dedicated short sellers and short-biased managers, relatively little leverage is used.

Role in a Portfolio

The primary goal of dedicated short-selling and short-biased funds is to produce returns that are uncorrelated (or negatively correlated) with the return of conventional portfolio assets. When successful, these negative correlations provide tremendous benefit to a portfolio.

However, this goal of negative correlation comes at a cost: expected returns for short strategies are relatively low. Historical performance of short strategies suggests that these strategies have produced returns that are unreliable and often underwhelming.

Equity Market Neutral

Equity market-neutral (EMN) strategies seek to attain a near-zero overall exposure to the stock market. They do this by taking long and short positions in various equities; the betas of these positions should sum to zero. The alpha of EMN strategies is intended to be derived from taking positions in securities that are temporarily mispriced.

Investment Characteristics

The overall goal of EMN funds is to create a portfolio that not only generates alpha, but is also relatively immune to movements in the overall market. Not surprisingly, without beta exposure, the returns of EMN funds tend to be modest. On the positive side, however, EMN funds can offer significant diversification and low volatility.

Strategy Implementation

Hedge fund managers for EMN funds take long positions in particular stocks thought to be temporarily undervalued and short positions in stocks seen as overvalued. When mean reversion eventually occurs, alpha should result.

While some EMN managers rely on intuition (i.e., discretionary managers), it is more common that they instead rely on a fixed set of rules to identify trade opportunities (i.e., quantitative managers).

Because EMN deliberately hedges away market beta, leverage is generally applied in order to achieve acceptable levels of return.

Popular subtypes of EMN funds include:

- **Pairs trading.** Two stocks with similar characteristics are identified that are respectively overvalued and undervalued. For example, the two securities might represent different share classes of the same firm, or one might be the stock of a firm and the other the stock of its holding company. In any case, the securities must be related but relatively mispriced.
- **Stub trading.** This EMN strategy involves going long and short shares of a subsidiary and its parent company. Generally the positions taken correspond to the percentage of the subsidiary owned by the parent.
- **Multi-class trading.** This strategy entails going long and short relatively mispriced share classes of the same firm, for example non-voting and voting shares. As the pricing of these shares reverts to their traditional valuations, profits can be made.

Besides investments in stocks, other instruments used to achieve a state of zero beta include options, stock index futures, or other kinds of derivatives.

Role in a Portfolio

EMN portfolios attempt to produce alpha without taking market beta risk. EMN strategies are of particular value in times when markets are volatile and performing poorly. The construction of EMN funds allows these funds to produce less volatility than funds that rely on beta as a source of return.

LOS 19.c: Discuss investment characteristics, strategy implementation, and role in a portfolio of event-driven hedge fund strategies.

Event-Driven Strategies

Event-driven hedge fund strategies are those that attempt to profit from predicting the outcome of corporate events, such as bankruptcies, mergers, restructurings, acquisitions, et cetera. To do this, these funds take positions in securities of these corporations or in related derivatives. A **soft-catalyst event-driven** approach is an investment made before an event is being announced, whereas a **hard-catalyst event-driven** approach is an investment made after a corporate event is being announced, taking advantage of security prices that have not fully adjusted. Soft-catalyst investing is generally more volatile and, thus, riskier than a hard-catalyst approach.

The main risk that impacts event-driven strategies is event risk. The chance that the outcome of the event will not be the one anticipated. For example, a merger arbitrage hedge fund may anticipate that a particular merger will be successful and then suffer a large loss when the merger fails.

In this topic review, we will consider two types of event-driven hedge fund strategies in detail: merger arbitrage and distressed securities.

Merger Arbitrage

Merger arbitrage strategies are investment schemes that attempt to earn a return from the uncertainty that exists in the market in the time between an acquisition being announced and when the acquisition is completed.

Hedge fund managers in the merger arbitrage space profit by correctly anticipating the outcome of various deals. One way to view merger arbitrage is to compare it to writing insurance on an acquisition. If the acquisition is completed as planned, the hedge fund earns an insurance premium. If the transaction fails, however, then the hedge fund stands to lose money, analogous to an insurance company making a payout.

Investment Characteristics

In the case of a merger deal that fails, the price movements that originally occurred when the merger was announced will reverse: the price of the target will fall, and the price of the acquirer will rise. A hedge fund that had taken a position based on the merger succeeding is likely to suffer a significant cost when the deal fails unexpectedly; possibly in the order of a 40% loss. This kind of potential outcome gives merger arbitrage significant left-tail risk.

Compared to typical hedge fund strategies, merger arbitrage is more liquid.

Strategy Implementation

In the most common merger arbitrage scenario, the portfolio manager takes positions in the securities of the companies involved, with the expectation of a successful deal. For example, in a stock-for-stock deal, the hedge fund manager will typically purchase the stock of the target company and *short* the stock of the acquiring company in anticipation of profiting when the deal is completed.

Less often, the hedge fund manager may have the opinion that the merger will fail (for example, the deal might be blocked by the government because it would stifle competition.) In this scenario, the fund would take the opposite position to those described above.

In order to generate a worthwhile level of return, hedge funds pursuing a merger arbitrage strategy will typically apply 300%–500% leverage in order to achieve low-double-digit returns.

One specific variety of merger arbitrage involves cross-border mergers and acquisitions (M&A) where two countries and two regulatory authorities are involved. Such mergers are seen as more risky.

Role in a Portfolio

The Sharpe ratios of merger arbitrage strategies tend to be high, as these strategies usually produce relatively steady returns. However, on top of these steady returns is significant left-tail risk.

Distressed Securities

Hedge funds that pursue a **distressed securities** strategy take positions in the securities of firms that are in financial distress, including firms that are in bankruptcy or near bankruptcy. Firms may find themselves in this position for a number of reasons, including too much leverage, difficulty competing in their sector, or accounting issues. The securities of such a firm will often trade at greatly depressed prices.

Compounding the discounting of the securities of distressed firms is the fact that institutions such as insurance companies and banks are often not permitted to hold non-investment-grade securities. The selling of such securities can create significant pricing inefficiencies and can open up opportunities for hedge funds seeking profit.

When a firm is liquidated, the assets of the company are sold and then the various investors are paid back *sequentially* depending on their seniority (e.g., senior secured debtholders first, then junior secured debt, unsecured debt, convertible debt, preferred stock, and lastly common stock).

As an alternative to liquidation, a firm may instead be able to reorganize, which may involve renegotiating the company's liabilities. Holders of debt may be asked to exchange that debt for new equity or to agree to an extension of the maturity.

Investment Characteristics

Considering the various event-driven hedge fund strategies, returns of distressed securities investing strategy tend to be somewhat greater, though generally with larger variability of outcomes.

The lock-up periods for investors in event-driven hedge funds tend to be comparatively long (often allowing no redemptions for the first two years), reflecting the fact that the outcome of distressed security investments generally takes an extended period of time to value and exit.

Strategy Implementation

Distressed investing can take different forms. Some managers may make only a passive investment in the distressed securities, while other managers will attempt to acquire the majority of a certain class of security in order to take creditor control during bankruptcy.

Successful distressed securities investing requires a particularly broad range of skills in order to navigate the various legal aspects of the strategy, including the bankruptcy and reorganization proceedings.

While shorting distressed securities is a possibility, the majority of distressed investing takes the form of long investments.

Distressed investing generally makes low use of leverage.

Role in a Portfolio

Distressed securities investing involves moderately high levels of illiquidity due to the nature of the assets being purchased. The returns of distressed securities investing is higher relative to other event-driven strategies, though it can be somewhat unpredictable and sensitive to declines in the overall market.

LOS 19.d: Discuss investment characteristics, strategy implementation, and role in a portfolio of relative value hedge fund strategies.

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Relative Value Hedge Fund Strategies

As the name suggests, **relative value** strategies attempt to exploit valuation differences between securities. The most common securities used in relative value strategies are hybrid convertible debt, as well as fixed-income securities.

When successful, relative value strategies will earn various premiums over time, including liquidity, credit, and volatility premiums, reflecting differences in liquidity or credit quality between securities. However, in times of turbulent markets, losses can occur.

Two relative value hedge fund strategies that we will consider in detail are fixed-income arbitrage and convertible bond arbitrage.

Fixed-Income Arbitrage

The idea behind **fixed-income arbitrage** strategies is to take advantage of temporary mispricing of fixed-income instruments, by going long comparatively undervalued securities, and going short comparatively overvalued securities. Idiosyncrasies that might be exploited include yield curve kinks or anticipated changes in the shape of the yield curve.

The securities may be fixed-income instruments of many types, including consumer debt, bank loans, corporate bonds, or sovereign bonds. Hedge fund managers take positions in these securities under the assumption that prices will revert toward their fair values.

Fixed-income arbitrage strategies often make use of significant leverage, in pursuit of sufficient levels of return.

Strategy Implementation

Two subtypes of fixed-income arbitrage strategies that we will consider in further depth are (1) yield curve trades and (2) carry trades.

- **Yield curve trades.** In this strategy, the hedge fund manager has a view of how the shape of the yield curve will evolve over time based on macroeconomic forecasts. The portfolio manager makes long and short investments in fixed-income instruments in order to profit from the anticipated yield curve steepening or flattening. As usual, the portfolio manager will profit when the prices of the long securities rise and the prices of the short securities fall. If the positions taken are in securities of different firms, then liquidity, credit, and interest rate risks will be present. For positions in securities of the same issuer, interest rate movements would be the main source of risk.
- **Carry trades.** In a carry trade, the portfolio manager shorts a low-yielding security and goes long a high-yielding security. The source of return here is twofold; first, from the yield differential, and second from the price changes as mean reversion occurs.

Because fixed-income securities tend to be priced fairly efficiently, the amount of profit that can be earned by fixed-income arbitrage is somewhat limited. As a result, substantial leverage is often applied to fixed-income arbitrage strategies. (400% leverage is not uncommon; even 1500% leverage is not unheard of.)

Investment Characteristics

Generally, the return to fixed-income arbitrage strategies are relatively small, so significant levels of leverage are used to increase the amount of return.

The liquidity of fixed-income arbitrage depends on the particular strategy employed and the kinds of fixed income instruments used. Strategies involving U.S. Treasuries are very liquid, while strategies that make use of mortgage-backed securities or foreign instruments, for example, are less liquid.

Role in a Portfolio

Return distributions for a fixed income arbitrageur tend to be similar to writing puts. If the trade unfolds as expected, the investor will earn a return from the spread narrowing, plus a return from positive carry. However, if the spread between the two instruments widens unexpectedly, the return to the investor may become quite negative.

One drawback to fixed income arbitrage strategies is that their highly leveraged nature can cause modest price volatility to lead to a domino effect of margin calls and deleveraging. For example, the Asian Financial Crisis of 1997 and the Russian Ruble Crisis of 1998 led to the collapse of the renowned hedge fund Long-Term Capital Management.

Convertible Bond Arbitrage

Convertible bonds are fixed-income debt securities that make regular coupon payments but can additionally be exchanged for a prearranged number of common stock shares. The bond-to-stock conversion is at the bondholder's discretion, though it is only permitted at certain points in the bond's life.

One way to view convertible bonds is as a regular bond plus a long call option on the corresponding stock.

Analyzing convertible bonds is extremely complex due to impacts from a number of factors.

The primary goal of **convertible bond arbitrage** strategies is generally to profit from purchasing the implied volatility of convertible bonds, which is often underpriced. To do this without taking on excess risk, convertible bond arbitrageurs will take on other positions to try to hedge out the delta and gamma risk of the convertible bond holdings.

Investment Characteristics

Convertible bond arbitrage managers encounter two primary sources of liquidity issues; first, because the strategy requires the manager to borrow and then short sell the underlying equity and second, because the fixed income instruments being invested in are often complex niche products.

Strategy Implementation

Convertible arbitrage strategies generally exploit the fact that the options within convertible instruments usually exhibit low implied volatilities when compared to the historical volatilities of the equities that underlie the option. The challenge for the convertible bond arbitrage manager that invests in these convertibles is to hedge away the other sources of risk that are embedded in the convertible security including market risk, interest rate risk, and the credit risk of the bond issuer.

When a convertible bond's current conversion price is well above the current stock price, the OTM call (delta closer to zero) will cause the convertible bond to behave much like a straight bond and, therefore, conversion is not likely.

Conversely, when a convertible bond's current conversion price is well below the current stock price, the ITM call (delta closer to one) will cause the convertible bond to behave much like the corresponding stock and, therefore, conversion is likely.

Significant amounts of leverage are usually used to implement convertible bond strategies, often combining a three times long bond exposure with a two times short equity exposure. (The smaller short equity exposure stems from delta hedging the short stock exposure according to the delta of the long bond position.)

Role in a Portfolio

Convertible arbitrage strategies perform best during periods of normal market conditions, when liquidity is available, when volatility is modest, and when there is a good selection of convertible bonds being issued. Convertible arbitrage may not perform well in periods of illiquidity or weak credit.



MODULE QUIZ 19.2

To best evaluate your performance, enter your quiz answers online.

1. Considering various equity-related hedge fund strategies, a strategy that is *most likely* to apply relatively high levels of leverage is:
 - A. an EMN strategy.
 - B. a dedicated short strategy.
 - C. a short-biased strategy.
2. An equity-related hedge fund strategy with gross exposures of 80% long and 35% short is *most likely* to be classified as:
 - A. a dedicated short strategy.
 - B. a short-biased strategy.
 - C. a long/short equity strategy.

3. Relative to other hedge fund strategies, EMN strategies are *most likely* to:
 - A. exhibit relatively modest returns.
 - B. be vulnerable to periods of market weakness.
 - C. earn return from alpha and beta risk.
4. An investment in distressed securities is *most likely* to be characterized by:
 - A. a long bias.
 - B. a high level of liquidity.
 - C. a large amount of leverage.
5. In a sequential payoff during a liquidation, the security holder that is *most likely* to be paid off first is the holder of:
 - A. junior secured debt.
 - B. convertible debt.
 - C. preferred stock.
6. In implementing a convertible arbitrage strategy, the portfolio manager is *most likely* to take a position that is:
 - A. long convertible bonds and short equity.
 - B. long straight bonds and short convertible bonds.
 - C. long convertible bonds and short straight bonds.

MODULE 19.3: OPPORTUNISTIC, SPECIALIST, AND MULTI-MANAGER STRATEGIES



Video covering
this content is
available online.

LOS 19.e: Discuss investment characteristics, strategy implementation, and role in a portfolio of opportunistic hedge fund strategies.

CFA® Program Curriculum, Volume 4, page 38

Opportunistic Hedge Fund Strategies

Opportunistic hedge fund strategies are a broad class of investing approaches that attempt to extract profits using a wide range of techniques in a broad range of securities markets. Rather than being focused on individual securities, these strategies take a top-down approach to make macro investments on a global basis across regions, sectors, and asset classes.

The returns of opportunistic hedge fund strategies are generally impacted by market cycles, global developments, and international interactions. The risks will depend on the particular strategy and asset classes involved.

The implementation of opportunistic hedge fund strategies can be based on a number of broad techniques. Technical analysis uses past price changes to forecast future price movements. Strategies based on fundamentals, on the other hand, attempt to analyze security prices, markets, sectors, and the relationships between markets, using economic data as the input.

Managers using a **systematic** implementation of their strategies use computer algorithms and rules to determine which trades to make. Managers using a **discretionary** process instead use their instinct to determine when to trade.

We will consider two opportunistic strategies in detail: global macro and managed futures.

Global Macro Strategies

Managers of **global macro** strategy funds attempt to profit from making correct assessments and forecasts of various global economic variables including inflation, currency exchange rates, yield curves, central bank policies, and the general economic health of different countries.

Global macro managers use a broad range of security types and global asset classes to take positions on these views.

A global macro manager that can identify a global trend early and take a position can profit.

Investment Characteristics

Global macro managers can take positions that are either **directional** (e.g., go long companies that are anticipated to benefit from expected interest rate hikes, and short companies that will be disadvantaged), or **thematic** (e.g., buy firms that will benefit from forthcoming free trade deals.)

Unlike some hedge fund strategies, low-volatility-mean-reverting markets are not generally favorable for global macro returns.

Because global macro managers take investment positions based on their predictions of the future, there is significant potential for unsuccessful investments when global economies do not behave as expected or if unanticipated risks emerge. As a result, the returns of global macro funds tend to be uneven and volatile.

Strategy Implementation

Global macro strategies tend to be based on top-down analysis beginning with scrutiny of the global economy, then macro trends within economies, and so on, in order to identify potential opportunities.

Different global macro managers are likely to implement their strategies using very different techniques; for example, technical analysis vs. fundamental analysis, or discretionary implementation versus systematic implementation.

One commonality between global macro funds is that most tend to apply leverage, often representing 600% or 700% of fund assets.

A manager making directional predictions will generally use fundamental information to determine whether a particular asset is undervalued or overvalued on a historical basis. On the other hand, a manager using a relative value strategy will seek out securities that are overvalued or undervalued compared to one another.

Global macro managers tend to use discretionary approaches more than managed futures managers.

Role in a Portfolio

When added to a portfolio of traditional assets, a global macro hedge fund can bring a significant benefit (not only alpha, but also portfolio diversification).

A successful global macro manager will anticipate changes before other market participants and will then invest in a position and wait for the rest of the market to come

around. This contrarian tendency can make an allocation to global macro strategies especially useful. For example, some global macro managers anticipated the United States' subprime mortgage crisis well before the housing bubble began to collapse in 2007.

During times of market stress, global macro funds have historically delivered right-tail skewed returns, which is extremely beneficial from a portfolio diversification perspective. However, this behavior cannot always be relied upon as such diversifying outcomes are not always realized.

Managed Futures

Hedge fund portfolio managers that pursue a **managed futures** strategy take long and short positions in a variety of derivatives contracts including futures, forwards, options on futures, swaps, and sometimes currencies and commodities.

Managed futures strategies can be as simple as trading index futures on a particular sector, or it can involve very exotic contracts such as futures on the weather.

Investment Characteristics

Managed futures funds do not buy and sell assets; rather, they enter into futures contracts in order to gain the desired exposures.

Because of the mechanics of futures contracts (requiring only a small amount of upfront collateral), managed futures funds can easily apply great amounts of leverage. Typically, a fund will use perhaps 1/8 of its capital as collateral on futures contracts. The other 7/8 or so will be invested in some highly liquid security (such as short-term government bonds) that will serve as collateral for the futures clearinghouse.

Managed futures funds are extremely liquid. The reason for this is that futures contracts themselves are highly liquid; they trade globally and continuously. Going long or short futures allows a hedge fund manager easy access to exposures across a range of asset classes.

One downside of the popularity of managed futures strategies is that **crowding** has occurred. Many market participants pursue the same trades and use similar signals, and execution slippage sometimes occurs.

Strategy Implementation

There are a number of ways to implement managed futures strategies.

In perhaps the most popular method, **time-series momentum (TSM)** trend following, portfolio managers simply follow momentum. They buy securities that have been rising in price and sell securities that have been falling.

Another similar methodology is **cross-sectional momentum (CSM)** strategies, which is carried out within a particular asset class (a *cross section* of assets). Again, the securities rising fastest are purchased and falling securities are shorted.

The high liquidity of futures contracts allows hedge fund managers to pursue a very wide selection of trading strategies. Generally, portfolio managers will rely on a signal trigger, most often based on volatility or momentum, to prompt the manager to trade.

In addition to using signals to indicate when to enter a trade, portfolio managers will also have rules for closing a position. Exit methodologies can be based on:

- Price target.
- Momentum reversal.
- Time.
- Trailing stop-loss.
- Some combination of these approaches.

The goal of managed futures strategies is to develop rules and signals that work well not only on historical data but also in real-world use. However, the more portfolio managers are using similar signals, the less effective these signals will become.

Managed futures strategies are typically implemented using systematic approaches, whereby the portfolio manager relies on signals produced by a computer program or model.

The size of positions taken are usually based on factors such as correlation and volatility.

Role in a Portfolio

Perhaps the most appealing feature of managed futures is their interaction with other investments. Overall, managed futures have very little correlation with traditional equity and fixed-income assets. The result is that when added to a portfolio, managed futures will generally improve the total risk-adjusted return.

This diversifying characteristic has proven its worth during times of market stress. While other strategies exhibit negative skewness during such periods, the positive right-tail skewness of managed futures provides a significant advantage.

LOS 19.f: Discuss investment characteristics, strategy implementation, and role in a portfolio of specialist hedge fund strategies.

CFA® Program Curriculum, Volume 4, page 46

Specialist Strategies

Portfolio managers for **specialist hedge fund strategies** use their knowledge of a particular market to pursue niche investment opportunities. The purpose of pursuing specialist strategies is to generate returns that are uncorrelated with traditional assets and produce high risk-adjusted returns. The risks of such strategies are often unique to the particular niche securities being invested in.

Two such strategies that we will consider in detail are volatility trading and reinsurance/life settlements.

Volatility Trading

Once an esoteric pursuit, **volatility trading** has evolved over recent years to become a recognized investable asset.

Volatility trading hedge fund managers will trade volatility-related assets globally, across countries and across asset classes, in order to exploit perceived differences in volatility pricing. The overall goal is to purchase underpriced volatility and sell overpriced volatility.

For example, the price of volatility in Asia has traditionally been lower than in other regions. Even though the Tokyo Stock Exchange traditionally has higher volatility than the New York Stock Exchange, implied volatility is usually cheaper in Tokyo than it is in New York.

Another volatility trade is to act as the counterparty to market participants that consistently seek long volatility. Because the negative correlation between stock market returns and equity volatility is high, equity investors seek to buy volatility as a hedge. A hedge fund that is willing to sell volatility will earn an insurance-like premium as compensation for taking on this risk; however, such a strategy can unravel in a dramatic fashion.

In the U.S. markets, the most common volatility futures are contracts on the **VIX index**, which tracks the 30-day implied volatility of the S&P 500 index. VIX contracts tend to be mean reverting because high volatility naturally tends to dissipate over time.

Strategy Implementation

Hedge fund managers wishing to pursue volatility trading have several options.

One possibility is to build various option strategies, such as straddles, calendar spreads, bull spreads, or bear spreads, using basic exchange-traded options.

A second possibility is to make use of over-the-counter (OTC) options, which are customized to meet the portfolio manager's specific needs. A drawback of this method, however, is that it introduces counterparty risk plus additional liquidity issues.

A more direct way to trade volatility is to use futures on the VIX index. An advantage of this method is that it is a very direct way to express a view on volatility, without the need for hedging. There are disadvantages though. First, the mean-reverting nature of the VIX index's price and second, many traders and investors crowd into the VIX futures in order to sell volatility and capture the associated premiums, making it difficult to profit from that strategy.

A fourth method of implementing a volatility trading strategy is to enter into an OTC **volatility swap** or alternatively a **variance swap**. These derivatives provide a relatively pure exposure to volatility. (Note that the name "swap" here is somewhat misleading. Volatility swaps and variance swaps are actually forward contracts with a payoff based on the difference between observed or realized variance multiplied by some notional amount).

Investment Characteristics

The investment characteristics of volatility trading will vary depending on the securities invested in and the positions taken.

Investors that take a short position in volatility will earn premiums and generally produce stable returns under average market conditions. A long position in volatility will display positive convexity, which can be valuable as a hedge.

The liquidity of a volatility trading strategy will depend on the instruments used. Futures and options based on VIX tend to be extremely liquid, and exchange-traded volatility options are liquid as well (especially when the tenor is short). OTC contracts on the other hand are generally less liquid.

The use of futures contracts makes it easy to apply leverage to a volatility trading strategy. The convexity of volatility derivatives means that sometimes large gains can be made from long volatility strategies while taking little risk.

Because of their unique nature, benchmarking of volatility trading strategy performance can be difficult.

Role in a Portfolio

In a portfolio, a long volatility strategy is a potent diversifier, because stock market volatility is highly negatively correlated with market returns. The downside of maintaining a long volatility position, however, is that a premium must be paid to the volatility seller.

Reinsurance/Life Settlements

In recent years, numerous hedge funds have formed to take advantage of attractive investment opportunities related to insurance policies. In a typical **life settlement** transaction, an insured person will sell (generally through a broker) their insurance policy to a hedge fund. After the investor pays the insured for the policy, the hedge fund then will be liable for the premium payments and will also receive the death benefit upon the passing of the insured.

Individuals will sell their life insurance contracts when they feel that they no longer benefit from the agreements. Individuals who purchased life insurance policies are incentivized to sell their policies to third-party brokers because those firms will oftentimes pay more for the policy than the issuing insurance company will pay for a surrendered policy.

Catastrophe risk **reinsurance** is another area where hedge funds are increasingly investing. **Catastrophe insurance** covers the holder against earthquakes, tornadoes, hurricanes, floods, and the like. In order to diversify and decrease risk, insurance companies in their normal course of business will sell off some of their risk to reinsurance companies, who may then lay these risks off on hedge funds in exchange for capital. Reinsurance can be a rewarding investment for a hedge fund if sufficient diversity can be obtained (e.g. vary by geography and types of insurance) if the insurance company provides sufficient loan loss reserves and if the policy premiums are adequate. When considering an investment in catastrophic insurance, the hedge fund considers both typical and worst-case outcomes and compares this to the insurance premiums to be received. Geographic diversity is important, as a specific catastrophic event will tend to affect only a particular part of the world.

Investment Characteristics

Strategies that involve investments in insurance contracts are illiquid, because insurance policies are somewhat difficult to sell after initiation.

Strategy Implementation

The term "life settlement" refers to a secondary market transaction on an insurance policy. A hedge fund that invests in life settlements will analyze various pools of life insurance contracts that brokers offer, and invest in the ones that are predicted to offer an attractive return. After investing, the hedge fund then becomes the beneficiary of these

contracts. The investment is successful if the present value of the future insurance payout exceeds the payments made by the hedge fund.

In selecting which insurance policies to invest in, a hedge fund will seek out policies with the following characteristics:

- The purchase price of the policy is low.
- The ongoing premium payments are low.
- The insured person is likely to die relatively soon.

One major prerequisite to profiting from life settlements is to develop an accurate alternative estimate of life expectancies. Appraising a life settlement requires a significant amount of skill and knowledge and requires comparing individual policyholders' outlooks to actuarial averages.

Role in a Portfolio

A very appealing feature of insurance investments in a portfolio is that the risk inherent in these strategies is almost entirely uncorrelated with market risks and business cycles. For example, floods and earthquakes have little or no correlation to the financial markets.

Thus, hedge funds that invest in such assets can add alpha to a portfolio while simultaneously adding return diversification.

LOS 19.g: Discuss investment characteristics, strategy implementation, and role in a portfolio of multi-manager hedge fund strategies.

CFA® Program Curriculum, Volume 4, page 53

Multi-Manager Hedge Fund Strategies

Up until this point in the topic review, we have been considering various individual hedge fund strategies. In reality, most investors invest not just in a single hedge fund strategy, but in a diverse set of strategies.

The notion behind multi-manager hedge funds is to assemble in a deliberate way a portfolio of diverse hedge fund strategies and to adjust the holdings strategically over time.

The best-known varieties of multi-manager hedge funds are funds-of-funds and multi-strategy funds.

Fund-Of-Funds

A **fund-of-funds (FoF)** takes capital from various individual investors and invests in a number of different hedge funds, generally each pursuing different strategies.

FoF can provide investors with a number of benefits:

- Diversification across hedge fund strategies.
- Expertise in individual manager selection.
- Strategic allocation and style allocation.
- Due diligence.
- Occasional value-added tactical decisions.

- Currency hedging.
- Leverage at the portfolio level.
- Better liquidity terms vs. individual hedge funds.
- Access to certain closed hedge funds.
- Economies of scale for monitoring.
- Research expertise.
- Potential liquidity efficiencies.
- Potentially valuable concessions from the underlying funds.

FoF also have the following disadvantages:

- A double layer of fees for the investor.
- Lack of transparency into individual hedge funds.
- No performance fees netting.
- Additional principal-agent issues.

Investment Characteristics

Individual hedge funds have traditionally charged a “**2 and 20**” fee structure, indicating management fees of 2% plus performance incentive fees of 20%. On top of this, FoF have historically added a 1% management fee, plus a further 20% incentive fee on the *total* FoF portfolio. (Though over time, these FoF fees have become negotiable and generally smaller.)

One important feature that FoF serve is making an investment in hedge funds practical for smaller investors, such as small institutions and for moderately wealthy individuals.

Hedge funds almost always require significant initial investments; typically \$1 million. Achieving a diversified exposure to a number of such funds poses a difficulty for smaller investors, as an investment in 20 hedge funds might require a cumulative minimum investment on the order of \$20 million. Furthermore, performing due diligence on 20 different hedge funds would require far more resources than most individual investors could muster. (Not to mention complications such as tax reporting on 20 investments.)

Using a FoF, on the other hand, a smaller investor can typically access a diversified hedge fund exposure for as little as \$100,000. In this way, FoF serve as an entry point into hedge fund investing.

Aside from providing an accessible path into hedge funds, FoF provide a number of other advantages. For example, FoF may provide access to high-profile managers whose funds are otherwise closed to new investors. Also, the larger size of FoF may allow the fund to obtain valuable concessions from the underlying funds’ management.

Liquidity can be a challenge for portfolio managers of funds-of-funds. Typically, a FoF will require a one-year initial **lock-up** for investors then will allow somewhat greater liquidity afterwards (e.g., monthly or quarterly). However, the underlying funds may have even stricter limits on liquidity, leaving a FoF manager in a potential squeeze.

Another drawback of funds-of-funds relates to potential netting risk, whereby investors could be required to make significant incentive payments to successful underlying funds, even if the overall performance of a FoF is poor.

Strategy Implementation

The fund-of-funds strategy is normally implemented as follows:

1. Use fund databases plus personal introductions to become familiar with hedge funds available for investment.
2. Choose an appropriate strategic allocation to different hedge fund strategies.
3. The manager selection process is initiated, using both top-down and bottom-up techniques.
4. For each hedge fund strategy, consider a number of candidates following that strategy.
5. Interview the candidate hedge fund managers.
6. Review relevant materials such as audit reports.
7. Examine the funds' personnel, operational processes, and risk management.
8. Negotiate with the individual fund managers for lower fees, improved liquidity, et cetera.
9. After the various funds are approved and included in the FoF, an ongoing monitoring process begins, intended to detect major personnel changes, style drift, et cetera.

The FoF's strategic allocation determines the percentage of total capital that will be invested in each hedge fund style. In addition to this strategic allocation is a tactical allocation, whereby the FoF manager will at various times underweight or overweight the various hedge fund strategies to reflect the FoF manager's perception of a changing market environment.

Role in a Portfolio

When a FoF manager takes a number of relatively uncorrelated hedge funds and combines them together in the same portfolio, a FoF should produce a number of advantages: greater diversification, steady returns, less concentrated exposure to risks, less volatility, and less exposure to the downside risk of any individual fund manager.

Multi-Strategy Hedge Funds

Like a FoF, **multi-strategy** hedge funds are funds that hold a number of other hedge funds where these various funds are pursuing diverse strategies. Also similar to a FoF, multi-strategy hedge funds are intended to use this diversification of strategy to produce steady low-volatility returns.

Unlike a FoF, the sub-funds in multi-strategy hedge funds are run by the same organization, rather than being managed by different hedge fund firms.

Investment Characteristics

The diversification of multi-strategy funds is intended to produce steady returns and low volatility.

Multi-strategy funds share some investment characteristics with funds-of-funds, but also there are significant differences. For example, the **operational risks** of a multi-strategy fund are not well-diversified as is with a FoF, because all of the operational processes of multi-strategy funds are performed under the same roof.

Furthermore, the diversity of strategies represented by the different funds in multi-strategy funds are often somewhat limited, because the managers employed by a specific multi-strategy fund tend to have somewhat similar investment viewpoints and methods.

A major advantage of multi-strategy funds over a FoF is the speed and relative ease with which **tactical** allocations can be made. Because each of the multi-strategy funds are managed in-house, it is relatively easy for the multi-strategy manager to reallocate investment from one strategy to another. The high internal transparency and fast response time makes tactical reallocations of multi-strategy funds practical, which could explain why multi-strategy funds have historically been seen as superior to funds-of-funds in protecting investments.

Investor fees for a multi-strategy fund are often more attractive than those of a FoF. While FoF investors are subject to netting risk (where hefty performance fees can be paid to some sub-fund managers, despite overall poor FoF performance), multi-strategy funds are more likely to absorb this netting risk internally. In this arrangement, the investor only pays an incentive fee on the total fund performance. (Some multi-strategy funds though do use a FoF-like “pass-through” fee model, which will expose investors to netting risk.)

Like a FoF, multi-strategy funds generally limit investor liquidity using redemption periods and initial lock-ups. Multi-strategy funds additionally often enforce limits on the amount of redemption each quarter.

Strategy Implementation

Multi-strategy funds carry out their approach by making investments in a number of varying hedge fund strategies.

One key advantage of multi-strategy funds is their ability to make tactical reallocations in addition to a fund’s strategic allocation. Furthermore, the multi-strategy fund’s internal teams are likely to be well informed about why and when capital and leverage should be reallocated, versus a FoF manager for whom the various funds are more opaque.

Risk management can also be more effective with a multi-strategy fund. Unlike FoF managers, multi-strategy managers should have an excellent view of correlations and common risks between the various funds.

Multi-strategy funds also enjoy efficiencies that come from multiple hedge fund teams sharing the same administrative resources.

Multi-strategy funds often will make greater use of leverage than the average FoF. Normally, leverage in multi-strategy funds does not pose much of a risk; however, during periods of market stress, small sources of danger can become significant left-tail risks that threaten the survival of the fund. (This kind of scenario led to the demise of Ritchie Capital in 2005 and Amaranth Advisors in 2006.)

Multi-strategy funds generally have more varied performance than a FoF.

Role in a Portfolio

Multi-strategy funds are intended to improve an investment portfolio by adding diversification and steady, low-volatility returns.

Historically, multi-strategy funds have generally performed better than have funds-of-funds, due to a superior fee structure and greater ability to execute on tactical asset allocation. However, the leveraged nature of multi-strategy funds can sometimes lead to a left-tail blow-up during times of stress.



MODULE QUIZ 19.3

To best evaluate your performance, enter your quiz answers online.

1. Considering global macro strategies and managed futures strategies, it would be *most accurate* to state that:
 - A. managed futures strategies use more discretionary approaches.
 - B. global macro strategies use more systematic approaches.
 - C. both strategies tend to be highly liquid and use high leverage.
2. During periods of market stress:
 - A. managed futures and global macro both exhibit right-tail skewness.
 - B. managed futures strategies exhibit left-tail skewness.
 - C. global macro strategies exhibit left-tail skewness.
3. Considering the correlation between equity volatility and equity market returns, the two measures are *most likely* to be:
 - A. highly positively correlated.
 - B. predominantly uncorrelated.
 - C. highly negatively correlated.
4. A hedge fund is *most likely* to purchase a pool of life insurance policies that has high:
 - A. surrender value.
 - B. ongoing premium payments.
 - C. likelihood of the insured person dying soon.
5. Compared to a multi-strategy fund, a fund-of-funds is *most likely* to offer the investor a more:
 - A. effective tactical asset allocation.
 - B. attractive fee structure.
 - C. diverse strategy mix.
6. Compared to a multi-strategy fund, a fund-of-funds is *most likely* to offer an investor higher:
 - A. transparency.
 - B. netting risks.
 - C. leverage.

MODULE 19.4: FACTOR MODELS AND PORTFOLIO IMPACT OF HEDGE FUNDS



Video covering this content is available online.

LOS 19.h: Describe how factor models may be used to understand hedge fund risk exposures.

CFA® Program Curriculum, Volume 4, page 60

Factor Models

Analysis of Hedge Fund Strategies

In this LOS, we will consider the use of a **conditional linear factor model** to quantify the risk exposures of various hedge fund strategies.

By conditional, we mean a model that takes into account that a fund may behave one way during normal market conditions and behave differently during a period of market turbulence (such as the global financial crisis of 2007–2009).

By determining a fund's actual risk exposures, events such as the widespread closure of hedge funds after the global financial crisis are less likely.

Conditional Factor Risk Model

Suppose we use the following conditional linear factor model to explain the return of hedge fund i in period t :

$$\begin{aligned} (\text{Return on HF})_{i,t} = & \alpha_i + \beta_{i,1}(\text{Factor 1})_t + \beta_{i,2}(\text{Factor 2})_t + \dots + \beta_{i,K}(\text{Factor K})_t + \\ & D_t\beta_{i,1}(\text{Factor 1})_t + D_t\beta_{i,2}(\text{Factor 2})_t + \dots + D_t\beta_{i,K}(\text{Factor K})_t \\ & + (\text{error})_{i,t} \end{aligned}$$

Any returns not explained by the model's risk factors would be attributed to either omitted risk factors, alpha (i.e., hedge fund manager skill), or randomness (error).

Hasanhodzic and Lo (2007) used the following six factors:

1. *Equity risk (SNP500)*: S&P 500 total return index.
2. *Interest rate risk (BOND)*: Bloomberg Barclays Corporate AA Intermediate Bond Index.
3. *Currency risk (USD)*: U.S. Dollar Index.
4. *Commodity risk (CMDTY)*: Goldman Sachs Commodity Index (GSCI) total return.
5. *Credit risk (CREDIT)*: Spread between Moody's Baa and Aaa corporate bond yields.
6. *Volatility risk (VIX)*: CBOE Volatility Index (VIX).

A **stepwise regression** process is useful for creating linear conditional factor models that avoid multicollinearity problems, by avoiding the use of highly correlated risk factors. When this stepwise regression process was run by the authors of the original reading, the process resulted in the BOND and CMDTY factors being dropped due to multicollinearity issues. (CREDIT and SNP500 respectively produced higher adjusted R^2 .)

This left the following four factors for measuring risk exposures:

1. Equity risk (SNP500).
2. Currency risk (USD).
3. Credit risk (CREDIT).
4. Volatility risk (VIX).

Each hedge fund strategy has different exposures to these various risk factors. These risk factors stem from taking long or short positions in financial instruments that are exposed to these risks.

For example, arbitrage strategies often are generally exposed to credit spread risk and market volatility risk. Event-driven strategies and L/S equity strategies generally have significant exposure to equity (market beta) risk.

LOS 19.i: Evaluate the impact of an allocation to a hedge fund strategy in a traditional investment portfolio.

In this LOS, we assess the effect of reallocating a portion of a traditional investment portfolio to a hedge fund strategy.

Specifically, we will consider what happens to the return and risk of the total portfolio when we add a 20% allocation to each of the hedge fund strategies discussed previously. The hedge fund allocation will be added to a conventional 60% stock/40% bond investment portfolio.

Portfolio Contribution of Hedge Fund Strategies

When the previously mentioned 20% allocation to hedge funds is added to a traditional 60% stock/40% bond investment portfolio, the resulting allocation is 48% stock, 32% bond, and 20% hedge fund.

Performance Contribution to a 60/40 Portfolio

When we add a 20% allocation to most hedge fund strategies to a traditional portfolio, the general result is the following:

- Total portfolio standard deviation decreases.
- Sharpe ratio increases.
- Sortino ratio increases.
- Maximum drawdown decreases in approximately one-third of portfolios.

The interpretation of these results is that hedge fund strategies generally increase risk-adjusted return and provide diversification to a traditional portfolio of stocks and bonds.

Risk-Adjusted Performance

The **Sharpe ratio** is one risk-adjusted measure of performance. The risk measure used to calculate the Sharpe ratio is standard deviation, so both downside and upside standard deviation result in a lower Sharpe ratio.

The **Sortino ratio** is a similar risk-adjusted measure of performance; however, only downside deviations are considered to reflect risk. Risk is measured as variability *below* a predefined level of return. Because of the left-tail risk present in many hedge fund strategies, the Sortino ratio is generally seen as a superior measure of the risk-adjusted performance of hedge funds.

When 20% allocations to various hedge fund strategies are added to the traditional stock/bond portfolio, notably high Sharpe ratios are also achieved from allocations to these strategies:

- Systematic futures hedge funds.
- Distressed securities.
- Fixed-income arbitrage.
- Global macro.
- Equity market neutral.

The highest Sortino ratios were attained via allocations to the following hedge fund strategies:

- Equity market neutral.
- Systematic futures.
- L/S equity.
- Event driven.

Allocations to the following strategies was found to be effective in generating superior risk-adjusted performance, based on the comparatively higher Sharpe and Sortino ratios:

- Systematic futures.
- Equity market neutral.
- Global macro.
- Event-driven hedge fund strategies.

On the other hand, it was observed that the following fund strategies do not significantly enhance risk-adjusted performance:

- Fund-of-funds.
- Multi-strategy.

While all of the hedge fund strategies expose the overall portfolio to various kinds of additional portfolio risks, allocating a portion of a stock/bond portfolio to hedge funds generally reduces risk and increases returns.

Risk Metrics

One key reason for investors to allocate a portion of their portfolio to hedge fund strategies is to reduce risk.

Standard Deviation

Perhaps not surprisingly, it was found that the following strategies resulted in the lowest standard deviations of returns for the overall portfolio:

- Dedicated short-biased.
- Bear market neutral.

These funds also produced notably low standard deviations:

- Systematic futures.
- FoF: macro/systematic.
- Equity market neutral.

The risk-reduction ability of these strategies has been found to be substantial. Not surprisingly, they are also some of the strategies that most improve risk-adjusted returns.

Funds that were found to have little positive impact on reducing standard deviations of the overall portfolio include:

- Event-driven: distressed securities.
- Relative value: convertible arbitrage.

An explanation for event-driven: distressed securities' lack of ability to reduce standard deviation is that these securities tend to take long positions in securities, and outcomes are either mild successes or grand failures.

Relative value: convertible arbitrage do little to improve standard deviation likely because their leveraged nature becomes a liability during times of market volatility.

Drawdown

Drawdown is defined as the peak-to-trough decline for a portfolio, generally quoted as the percentage drop between a peak and the subsequent trough. The **high-water mark** refers to the maximum value the portfolio has ever reached.

Drawdown is useful for quantifying the risk and past performance of various investment strategies, and for comparing one strategy's risk to another.

The hedge fund strategies that produced the smallest maximum drawdowns are various opportunistic strategies:

- Global macro.
- Systematic futures.
- Merger arbitrage.
- Equity market neutral.

Use of the conditional risk model can show that these strategies perform relatively well during periods of market crisis because they have minimal exposure to credit risk or equity. Furthermore, these strategies benefit from their liquid nature. These properties make opportunistic strategies useful diversifiers for traditional assets.

Other hedge fund strategies had entirely dissimilar drawdown performance. These strategies did little to mitigate the traditional portfolio's maximum drawdown:

- L/S equity.
- Event-driven: distressed securities.
- Relative value: convertible arbitrage.

These results are somewhat expected. Using the conditional risk model, we can demonstrate that these particular strategies have significant exposure to equity risk, and furthermore during crisis periods they have significant exposure to credit risk as well.



MODULE QUIZ 19.4

To best evaluate your performance, enter your quiz answers online.

1. Conditional linear factor models used to understand hedge fund risk exposures are *most likely* to use factors including:
 - A. liquidity risk, operational risk, valuation risk, and systemic risk.
 - B. interest rate risk, commodity risk, margining risk, and concentration risk.
 - C. equity risk, credit risk, currency risk, and volatility risk.
2. Adding a 20% allocation of a hedge fund strategy to a traditional 60%/40% portfolio is *most likely* to increase the total portfolio's:
 - A. standard deviation.
 - B. maximum drawdown.
 - C. Sortino ratio.
3. The risk-adjusted performance of a traditional 60%/40% portfolio is *most likely* to be improved by adding an allocation to a hedge fund using the strategy of:
 - A. equity market neutral.
 - B. fund-of-funds.
 - C. multi-strategy.

KEY CONCEPTS

LOS 19.a

Hedge fund strategies are classified based on the instruments they invest in, the philosophy followed, and the kinds of risk exposures taken.

This reading classifies hedge fund strategies into the following six categories:

1. Equity related.
2. Event driven.
3. Relative value.
4. Opportunistic.
5. Specialist.
6. Multi-manager.

LOS 19.b

Long/short equity. This strategy generates alpha via careful stock picking. L/S funds are typically liquid, and generally net long. Equity L/S managers aspire to the returns of a long-only approach but with lower standard deviations. The more market-neutral the approach, the more leverage is likely to be applied.

Dedicated short-selling and short-biased strategies. These two strategies have a negative correlations to traditional assets and modest return goals. The focus is on stock picking using minimal leverage. Dedicated short strategies are generally 60%–120% short at all times, while short-biased strategies are typically 30%–60% net short with some long exposure. Short-biased managers moderate short beta with some long exposure (and cash).

Equity market-neutral (EMN). These strategies attempt to profit from short-term mispricing between securities. Beta risk is minimal, making EMN strategies attractive in periods of market weakness. Most managers are quantitative (vs. discretionary). High leverage is usually used.

LOS 19.c

Merger arbitrage. This strategy attempts to profit by taking positions on a corporate takeover. Merger arbitrage returns are usually insurance-like with a high Sharpe ratio. However, left-tail risk is present. Negative returns can occur if a merger deals unexpectedly fails. Some leverage is usually applied to generate meaningful returns. It is a relatively liquid strategy.

Distressed securities. These strategies focus on firms in bankruptcy or facing other financial stress and seek out mispriced securities. Distressed securities strategies are usually long biased with high illiquidity and moderate or low leverage. Returns tend to be high compared to other event-driven strategies.

LOS 19.d

Fixed-income arbitrage. This strategy attempts to profit from the mispricing of bonds. Sub-strategies include yield curve trades and carry trades. Fixed-income arbitrage usually uses high leverage.

Convertible arbitrage. These strategies attempt to extract “underpriced” implied volatility from long convertible bonds. Convertible arbitrage works best when there is

high convertible issuance, adequate market liquidity, and moderate volatility. Liquidity issues may arise from convertibles being somewhat illiquid. Convertible arbitrage managers generally run about 300% long versus 200% short.

LOS 19.e

Opportunistic strategies tend to be highly liquid and use high leverage.

Global macro. These strategies use discretionary approaches and a range of financial instruments to exploit trends in global financial markets. Global macro strategies offer diversification during periods of stress but with mixed outcomes.

Managed futures. In these strategies, a portfolio of futures contracts is actively managed using systematic approaches to provide portfolio and market diversification. Managed futures strategies often exhibit right-tail skew during market turmoil.

LOS 19.f

Specialist hedge fund strategies operate in market niches in order to generate uncorrelated returns. Success with these strategies usually requires specialized knowledge.

Volatility traders. These strategies seek to profit from changes in the term structure of volatility. OTC options can be used to create bull spreads, bear spreads, straddles, and calendar spreads. Alternatively, other instruments including VIX futures, volatility swaps, and variance swaps can be used.

Life settlements. In these strategies, pools of life insurance contracts are purchased, and the hedge fund becomes the beneficiary. The hedge fund manager looks for policies with low surrender value, low ongoing premium payments, and high probability that the insured person will die soon.

LOS 19.g

Multi-manager hedge fund strategies use strategy diversification in an attempt to produce low-volatility, steady returns.

Funds-of-funds. This strategy involves a hedge fund that invests in other hedge funds. Funds-of-funds can offer a very broad strategy mix but can suffer from a lack of transparency, slower tactical execution, and can also expose the FoF investor to netting risk.

Multi-strategy funds. In this hedge fund strategy, a single hedge fund pursues a combination of strategies all under one roof. Compared to funds-of-funds, multi-strategy funds offer a better fee structure and faster tactical asset allocation, though operational risks are less diversified.

LOS 19.h

Conditional linear factor models can be useful for analyzing hedge fund strategies in terms of their risk factor exposures. The curriculum makes use of a specific four-factor model (incorporating equity risk, currency risk, volatility risk, and credit risk factors) to quantify a strategy's exposures.

LOS 19.i

Hedge funds generally bring diversification to traditional stock/bond portfolios, and enhance risk-adjusted returns. The addition of a 20% hedge fund allocation to a traditional 60% stock/40% bond portfolio generally decreases the portfolio's total

standard deviation, increases the Sharpe and Sortino ratios, and decreases maximum drawdown.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 19.1

1. **C** Convertible bond arbitrage strategies are generally classified as relative value strategies. (LOS 19.a)
2. **A** Managed futures strategies are generally classified as opportunistic strategies. (LOS 19.a)

Module Quiz 19.2

1. **A** EMN strategies usually apply somewhat high levels of leverage in order to produce meaningful levels of return. Neither dedicated short strategies nor short-biased strategies typically make significant use of leverage. (LOS 19.b)
2. **C** Equity L/S strategies typically have gross exposures of 70%–90% long and 20%–50% short. Dedicated short strategies are usually 60%–120% short at all times. Short-biased strategies are usually around 30%–60% net short. (LOS 19.b)
3. **A** Compared to various other hedge fund strategies, EMN strategies generally have relatively modest return profiles. EMN funds' primary source of return is alpha. They do not take on beta risk. Their lack of market exposure make EMN strategies attractive in periods of market weakness. (LOS 19.b)
4. **A** While short positions are possible in distressed securities investing, it is usually long biased. Illiquidity tends to be high, and the strategy generally uses moderate to low leverage. (LOS 19.c)
5. **A** When a firm's assets are sold off in liquidation, securities holders are paid sequentially depending on the priority of their claims: first senior secured debt, then junior secured debt, unsecured debt, convertible debt, preferred stock, and lastly common stock. (LOS 19.c)
6. **A** Convertible arbitrage managers generally attempt to extract underpriced implied volatility from holdings of long convertible bonds. To delta and gamma hedge these exposures, the managers will take *short equity* positions. (LOS 19.d)

Module Quiz 19.3

1. **C** Managed futures strategies usually are implemented via systematic approaches, while global macro strategies more often use discretionary approaches. Both strategies typically use high leverage and tend to be highly liquid. (LOS 19.e)
2. **A** Returns of managed futures and global macro strategies both typically exhibit right-tail (positive) skewness during times of market stress. Global macro strategies, however, generally deliver more heterogeneous outcomes. (LOS 19.e)
3. **C** Equity volatility is roughly 80% negatively correlated with equity market returns. Volatility levels rise when equity markets fall. This characteristic makes long volatility strategies useful diversifiers for long equity investments. (LOS 19.f)

4. **C** In implementing life settlement strategies, a hedge fund manager looks for policies with the following traits: low surrender value being offered to the insured individual, low ongoing premium payments required of the investor, and high probability that the insured person will die sooner than predicted by actuarial methods. (LOS 19.f)
5. **C** Funds-of-funds generally offer a more diverse strategy mix than do multi-strategy funds. Multi-strategy funds offer *quicker* tactical asset allocation and generally a *better* fee structure (for example, netting risk between strategies is often absorbed by the multi-strategy general partner). (LOS 19.g)
6. **B** Compared to multi-strategy funds, funds-of-funds offer an investor less transparency and higher netting risk. Multi-strategy funds have more variance due to less diverse strategies and use comparatively higher leverage. (LOS 19.g)

Module Quiz 19.4

1. **C** This reading uses a model that incorporates four factors: equity risk, credit risk, currency risk, and volatility risk. (The interest rate risk “BOND” and commodity risk “COMDTY” factors used by Hasanahodzic and Lo were dropped due to multicollinearity issues.) (LOS 19.h)
2. **C** Adding a 20% allocation of a hedge fund strategy to a traditional 60%/40% portfolio usually *decreases* total portfolio standard deviation while it increases Sharpe and Sortino ratios in the combined portfolios. An allocation to hedge funds often *decreases* maximum drawdown. (LOS 19.i)
3. **A** Adding allocations of equity market-neutral hedge fund strategies to a traditional portfolio has been shown to be effective in generating superior risk-adjusted performance, as evidenced by high Sharpe and Sortino ratios. (The same is true of systematic futures, global macro, and event-driven strategies). On the other hand, fund-of-funds and multi-strategy funds have been found not to enhance risk-adjusted performance significantly. (LOS 19.i)

The following is a review of the Alternative Investments for Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #20.

READING 20: ASSET ALLOCATION TO ALTERNATIVE INVESTMENTS

Study Session 9

EXAM FOCUS

Candidates should understand the potential benefits of adding alternative investments to a portfolio of publicly traded equities and debt, and the factors that enter into the determination of an optimal allocation to alternative investments. Candidates will develop an understanding of the characteristics of different types of alternative investments that affect the asset allocation decision. They should be able to contrast factor based optimization with mean-variance optimization. Candidates must pay special attention to liquidity concerns with alternative investments and how an investor's time horizon affects the suitability of specific types of alternative investments.

MODULE 20.1: ROLE OF ALTERNATIVE INVESTMENTS AND DEFINING THE INVESTMENT OPPORTUNITY SET



Video covering this content is available online.

LOS 20.a: Explain the roles that alternative investments play in multi-asset portfolios.

CFA® Program Curriculum, Volume 4, page 103

Alternative investments refers to various types of investments including hedge funds, private equity, private credit, commercial real estate, and real assets. There are also different types of investments, with somewhat different characteristics, within each of these categories. Real assets include agricultural commodities, precious metals, industrial metals, agricultural land, and oil. Hedge funds pursue a variety of strategies, including long-short hedging, short bias, risk arbitrage, and various quantitative investment strategies. Private equity funds might specialize in existing health care firms or venture capital investments. Each of these will have somewhat different risk and return characteristics as well as different correlations with the returns of traditional investments.

Overall, the goal of adding alternative investments to a portfolio is most often to improve the portfolio's risk and returns profile (e.g., increase the portfolio's **Sharpe ratio**). This can result from investing in assets that increase expected returns, have low risk, or, often, have low returns correlations with other portfolio assets so that diversification across asset classes reduces portfolio risk without sacrificing return. Additionally, investors may seek alternative investments that provide income, the potential for capital growth, or safety (preservation of value).

Private equity and private credit may be viewed primarily as return-enhancing (and risk-increasing) portfolio investments. Real assets may be viewed as risk-reducing (and thus, lower-return) investments. Hedge funds can fall anywhere along this spectrum, depending on the strategies pursued by their managers.

Equity investments, both public and private, typically provide capital growth. Investments in bonds or real estate may generate income. Real assets, and some hedge fund strategies, may diversify risk for an equity portfolio, while private credit may diversify the risk profile for a fixed-income portfolio that is primarily exposed to interest rate risk. Precious metals or government bonds may be seen as safe-haven asset classes.

Hedge funds. Some hedge fund strategies, such as equity long/short or short bias, may somewhat reduce a portfolio's overall equity beta but are mainly expected to increase returns through their managers' security selection skill. Other hedge fund strategies, such as merger arbitrage or global macro, may be less correlated with traditional asset classes.

Private equity. For a portfolio of public equity securities, an allocation to private equity has limited diversification potential because public and private companies face essentially the same risk factors. Thus, the main function of private equity in the portfolio is to increase expected returns.

Private credit. This class of alternative investments include both direct lending and distressed debt. Direct lending is primarily an income-producing investment. For a given range of credit quality, the risk-return profile tends to be similar for direct lending and publicly traded debt, except that direct lending has additional risk (and an expected return premium) due to its illiquidity. Distressed debt has a risk-return profile more like equity securities, because factors specific to the issuer have a greater effect on the debt's performance than factors that affect fixed-income investments in general.

Commercial real estate. Real estate investments can hedge inflation risk. Both rental income and the value of properties owned may increase with inflation.

Real assets. Assets such as commodities, farm and timberland, and infrastructure also protect against inflation risk. Asset holdings can target particular subsets of inflation risk, such as energy, food, or building materials. Infrastructure investments require a longer time horizon and their correlation with inflation may be limited, for example, by utility rate regulations.

LOS 20.b: Compare alternative investments and bonds as risk mitigators in relation to a long equity position.

CFA® Program Curriculum, Volume 4, page 110

Are alternative investments or bonds the better choice for diversifying an equity portfolio? The answer may depend on the investor's investment horizon.

For a short investment horizon, the primary risk facing the investor is returns volatility. Reducing volatility is best achieved by allocating a portion of the portfolio to an asset class with a low correlation of returns with equities.

For alternative investments as an asset class, reported volatility of returns appears lower than the volatility of equity returns, and its correlation with equity returns also appears to be low. However, these statistics are likely to be biased downward for a number of reasons:

- **Appraisal-based** valuations of privately held investments result in smoothing of reported returns.
- Databases of alternative investment returns are subject to sampling biases, such as **survivorship bias** and **backfill bias**, which result in downside risk being understated in the reported data.
- Indexes of alternative investment returns reflect some degree of diversification because funds in an index may have low correlations of returns with each other. Thus, the volatility of returns on the index is less than the average volatility of returns on index components.

As a result, both the volatility of alternative investment returns and their correlation with equity returns may be higher than they appear to be in reported data.

By comparison, bonds as an asset class have had a lower correlation with equity returns than alternative investments. In fact, over the 20 years before 2017, their correlation with equity returns has been negative. (The correlation was positive in the two decades before that, when inflation was higher.) As a result, an allocation to bonds is likely to reduce the volatility of an equity portfolio's returns more than an equal allocation to alternative investments.

With a long time horizon, however, the primary risk is not returns volatility, but failing to achieve a minimum required rate of return over time. For example, an endowment must earn an average rate of return greater than the sum of inflation and its required annual distributions. Because bonds have a lower expected rate of return than equities, allocating assets to bonds may increase the risk of a portfolio failing to earn its needed rate of return.

In this case, alternative investments can be a better choice for diversification. Their returns correlation with equities, while higher than commonly reported, is still less than perfect even after adjusting for statistical biases. Therefore they offer a potential diversification benefit to an equity portfolio. Because the expected return on alternative investments is higher than that of bonds, over a long time horizon they reduce the risk of failing to meet the portfolio's return requirements.

LOS 20.c: Compare traditional and risk-based approaches to defining the investment opportunity set, including alternative investments.

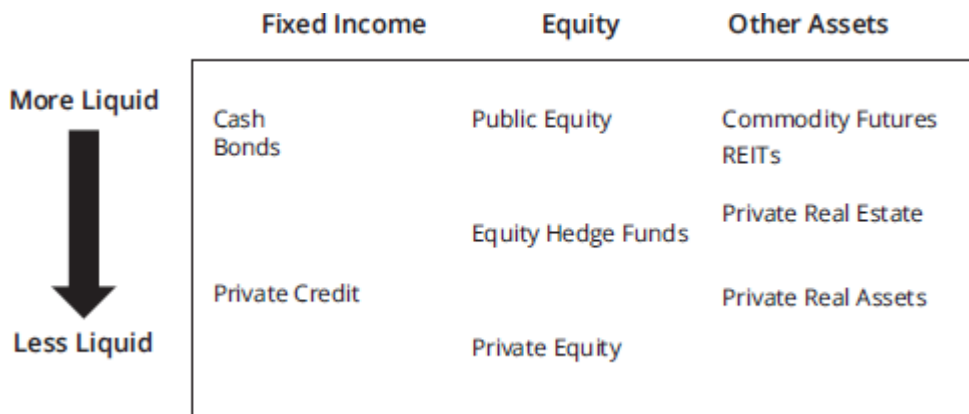
CFA® Program Curriculum, Volume 4, page 116

Traditional approaches to defining the **investment opportunity set** include classifying asset groups by liquidity or by how they perform over economic cycles.

A portfolio manager using a liquidity-based approach would distinguish between alternative investments that are publicly traded, such as futures contracts or REITs, and those that are not publicly traded. Among alternative investments that are not publicly traded, the manager would further classify them by the length of the time commitment required. For example, private equity may be viewed as an asset class that requires a longer-term commitment than private credit, while both require a longer commitment than more liquid alternative investments.

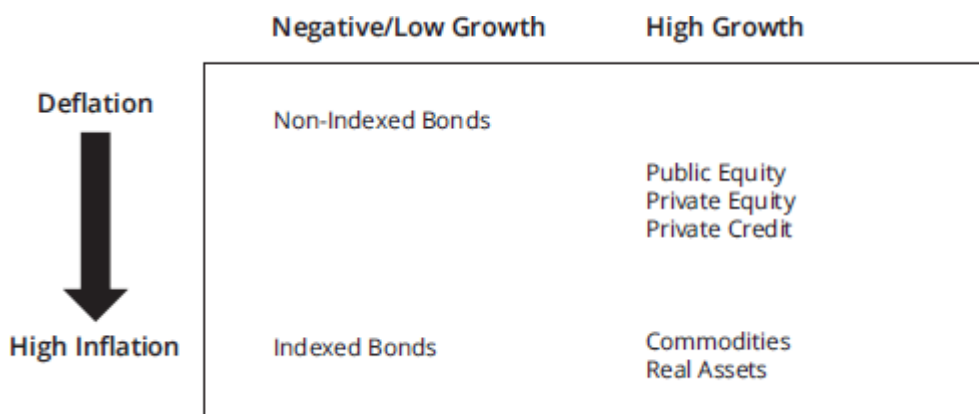
Figure 20.1 shows how asset classes might be considered based on liquidity characteristics.

Figure 20.1: Liquidity-Based Investment Opportunity Set



Another traditional approach is to classify assets by how they are expected to perform under different scenarios for economic growth and inflation. Using this approach, a manager would distinguish among asset classes that provide growth in an expanding economy (primarily equities), asset classes that hedge inflation risk (such as real assets and inflation-linked bonds), and asset classes that hedge against deflation (primarily non-inflation-indexed government bonds). Figure 20.2 shows an example of an investment opportunity set that uses this approach.

Figure 20.2: Economic Environment-Based Investment Opportunity Set



A **risk factor based approach** to defining asset classes involves statistically estimating their sensitivities to risk factors identified by the manager. Examples may include economic growth and inflation, interest rates and credit spreads, or currency values. They may also include factors such as liquidity, capitalization, and value-versus-growth.

With respect to alternative investments, a risk factor analysis may show that some alternative investment classes are similar to traditional asset classes in terms of factor sensitivity. For example, private equity returns are sensitive to many of the same risks as public equity, while private credit has many of the same risk sensitivities as publicly traded high yield bonds.

Identifying sources of risk that are common across asset classes is one of the key advantages of a risk factor based approach. This mitigates a limitation of the traditional approaches, which may classify investments into different classes even when they face largely the same risk factors, leading a manager to believe the portfolio is more diversified than it actually is.

Another advantage of a risk-based approach is that by allowing a manager to analyze multiple dimensions of portfolio risk, this approach is useful for developing an integrated

risk management framework. In this sense, it can be more useful than the traditional approaches for highlighting the primary drivers of portfolio risk.

Managers using a risk factor based approach must be aware that risk factor estimates can be sensitive to the period used for analysis. The results may also be more difficult to communicate to decision makers and to implement compared to traditional approaches.



MODULE QUIZ 20.1

To best evaluate your performance, enter your quiz answers online.

1. Which of the following categories of alternative investments would be *most appropriate* for diversifying a portfolio of public equity?
 - A. Private equity and short-bias hedge funds.
 - B. Long-short hedge funds and distressed debt.
 - C. Commercial real estate and global macro hedge funds.
2. For alternative investments as an asset class, appraisal-based valuations and sampling biases are believed to overstate:
 - A. returns.
 - B. risk measures.
 - C. diversification benefits.

MODULE 20.2: CONSIDERATIONS IN ALLOCATING TO ALTERNATIVE INVESTMENTS



Video covering this content is available online.

LOS 20.d: Discuss investment considerations that are important in allocating to different types of alternative investments.

CFA® Program Curriculum, Volume 4, page 126

As with any asset allocation decision, an allocation to alternative investments must consider their risk, expected return, and returns correlation with the existing portfolio. An allocation to alternative investments also requires that investors consider a number of factors specific to this asset class. These include the choice of investment vehicles to be used, liquidity concerns, expenses and fees, the tax status of the investments, and the ability to obtain the expertise needed to invest successfully.

Setting return expectations for alternative investments is made more difficult by their short history relative to other asset classes and by the limited validity of the data that are available. A suggested approach to determining an expected return for a particular class of alternative investments is to estimate each of its risk factor exposures, and add the expected returns from these exposures to the risk-free rate. An analyst may add an assumed return for the fund manager's alpha and subtract fees and taxes, in order to refine this estimate.

Several characteristics of alternative investments limit the usefulness of mean-variance optimization as a tool for determining their appropriate portfolio allocations. Because of illiquidity and valuation issues, option-like return patterns, and the fact that returns from some strategies tend to be low or negative during a drawdown period and high in later years, we cannot assume returns are normally distributed. Additionally, for alternative investments for which committed capital is not immediately invested by the manager, a portfolio's effective allocation to the asset class might be less than its target.

Investment Vehicles

A typical structure for an alternative investment vehicle is a **limited partnership**. The investment manager is the **general partner** and investors in the fund are **limited partners**. With this structure, the liability of investors in the fund is limited to the amount they have committed. Often these limited partnerships are registered offshore for tax or reporting reasons.

Investing directly in a limited partnership is appropriate for large investors that have the expertise to evaluate managers and fund strategies. They typically invest in a variety of limited partnerships to diversify the specific risks that each general partner will take on as they pursue their strategies. Limited partners sometimes co-invest with a general partner, but they cannot be directly involved in fund operations.

For investors that lack the needed expertise, investing through a **fund-of-funds** may be appropriate. A fund-of-funds manager can pool capital from investors and use it to invest in limited partnerships. Typically, a fund-of-funds manager will specialize in a particular subset of alternative investment strategies. The benefit of a fund-of-funds is that it provides access to this asset class to investors who otherwise would not have it. The drawback is that they charge an additional layer of fees above those charged by the underlying limited partnerships.

Some investors that are large enough to demand favorable investment terms may establish **separately managed accounts** (SMAs) through which to access alternative investments. SMAs have requirements for both the investor and the fund manager that can make them challenging to implement. Another approach is to establish a limited partnership with a single client, known as a **fund of one**. A risk with SMAs or funds of one is that general partners, when allocating certain investment opportunities to investors, may favor limited partners who are paying the fund's standard fees.

Some open-ended mutual funds and "**undertakings for collective investment in transferable securities**" (UCITS) have developed to give smaller investors access to alternative investments. However, these structures are more regulated than the other investment vehicles and may constrain managers' choice of strategies. As a result, returns on investments through these structures might not achieve the returns realized by the asset class as a whole.

Liquidity Concerns

Liquidity risk is one of the distinguishing characteristics of alternative investments. Both the investment structures and the underlying investments themselves contribute to liquidity risk.

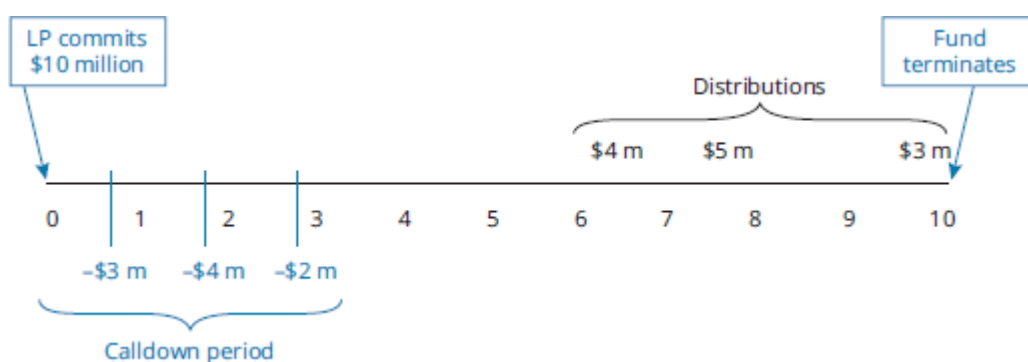
Limited partnerships for alternative investments are typically structured with subscription provisions for accepting capital, lock-up periods, and restrictions on redemptions. Hedge funds, for example, may accept new capital quarterly or monthly, impose lock-up periods (often six months or a year) during which limited partners may not make redemptions or may do so only with a penalty, and offer redemptions on a quarterly or annual schedule as well as requiring a notice period prior to redemptions. They may also impose "gates" or maximum amounts that can be redeemed at any one time.

For funds in the private equity, private credit, real estate, and real asset sectors, liquidity provisions are often more strict than is typical for hedge funds. Subscriptions are

structured in “closes” for new investors, usually over a one-year period. Limited partners commit a stated amount of capital, and the general partner will “call” this capital over an investment period (such as 3 to 5 years) as they identify investment opportunities. Redemptions are typically not available. Instead, the fund will distribute capital over its life (often 10 to 12 years) as it exits its investments. A small secondary market exists for limited partnerships, but transactions often take place at significant discounts to funds’ net asset values and may require approval from the general partner.

Figure 20.3 illustrates a time line of cash flows that might occur for a \$10 million commitment to a private equity fund.

Figure 20.3: \$10 Million Capital Commitment to a Hypothetical Private Equity Fund



Note in the figure that only \$9 million of the limited partner’s capital was called. A general partner is not required to call the full amount of committed capital. This is an important consideration when estimating expected returns on a portfolio allocation to alternative investments. A fund may achieve an impressive rate of return, but a limited partner is only earning that return on the portion of committed capital that has been called.

Neither **capital calls** nor distributions occur on a predetermined schedule. Capital may be called (or not) at any time during the **calldown period**. Distributions can occur at any point in the fund’s life, even during the calldown period. This, too, affects how much of a portfolio’s allocation to alternative investments is actually invested at any point in time.

Limited partners must also consider the opportunity cost of their committed capital during the calldown period. Investing this capital in cash equivalents reduces returns. On the other hand, investing it in higher return but less liquid investments risks missing a capital call. Penalties for doing so can be severe, such as forfeiting all capital invested in the fund to date.

With respect to the liquidity of a fund’s holdings, a potential issue is whether they are consistent with the fund’s redemption terms. This is mostly a consideration for hedge funds; as noted previously, other types of private investment funds generally do not offer redemptions.

Hedge funds that pursue long-only equity strategies tend to hold relatively liquid investments that are consistent with offering redemptions monthly or quarterly. Short positions are less liquid, which can be a concern if funds that hold significant short positions also offer redemptions frequently. Investors should also note that general partners might designate some of a fund’s less liquid holdings as not subject to the fund’s

ordinary redemption terms. This is referred to as a “**side pocket**.” A fund’s redemption terms may be misleading if a large portion of its holdings are side pocketed.

Frequent redemption periods may limit a general partner’s flexibility to implement strategies with long time horizons or infrequent investment opportunities, such as event-driven strategies. This is particularly true for distressed assets and is the reason funds specializing in those tend to be private equity partnerships rather than hedge funds.

Funds that hold significant portions of illiquid investments, such as some relative value funds, may restrict redemptions under certain market conditions to avoid having to liquidate these assets during crisis periods. One effect of these restrictions is that during such periods, investors may demand redemptions from other hedge funds that have more liquid holdings.

Leverage is another important liquidity consideration because creditors have priority of claims over limited partners. Margin calls may force a leveraged fund to sell its most liquid holdings and be left with its less liquid investments, regardless of which holdings the general partner would otherwise prefer to keep.

Expenses, Fees, and Taxes

Many alternative investments involve significant fees and expenses, such as the “2 and 20” fee structure of many hedge funds (annual management fee 2% of assets under management, incentive fee 20% of gains). Administrative expenses of a fund may also be passed through to investors.

Funds with calldown structures charge management fees on the amount of committed capital, regardless of how much of it has been called down. This may generate negative returns in the early years of an investment when much of the committed capital is yet to be called.

Investors must ensure that their investments, and the investment vehicles used to invest, are consistent with their tax situations. Some fund strategies may result in short-term taxable income to investors, or may be subject to tax withholding. Investors who need to estimate their annual income for tax reporting may find it difficult to do so given the unpredictable nature of returns from many alternative investments. Tax-exempt organizations must ensure that income from a fund will not be considered to be unrelated to the organization’s purpose, and therefore considered taxable.

Intermediaries or In-House Programs

Large investors may consider developing their own program for implementing alternative investments directly rather than using intermediaries such as funds of funds. An in-house program may be appropriate for an investor that needs highly customized solutions, desires close control over its investment program, or wishes to implement co-investments with general partners. The “build or buy” decision depends on whether the investor can produce similar results to those of an intermediary at lower cost or generate returns high enough to offset any costs in excess of the costs charged by an intermediary.

A successful program must be able to identify and invest with the best fund managers. Even if an investor is expert at choosing managers who will generate top returns, those managers may attract more capital than they can invest productively, and therefore close their funds to new investors. Managers may also decline capital from investors whose

public reporting requirements they feel would be inconsistent with their proprietary strategies.

Investors must also be able to perform due diligence on managers with whom they wish to invest. This requires access to their key decision makers, both before and during the life of an investment. Without this level of access, an investor may be left in a troubled fund when better-informed investors have already demanded redemptions.



MODULE QUIZ 20.2

To best evaluate your performance, enter your quiz answers online.

1. A limited partnership structure with a single client is known as:
 - A. UCITS.
 - B. a fund of one.
 - C. a separately managed account.
2. Cash flows from investors into a private equity limited partnership:
 - A. are at the discretion of the general partner.
 - B. will be 100% invested after three to five years.
 - C. are made only on the establishment date of the partnership.
3. Which of the following terms describes the practice of a hedge fund designating certain of its investment holdings as exempt from the fund's ordinary redemption terms?
 - A. Gate.
 - B. Lock-up.
 - C. Side pocket.



Video covering
this content is
available online.

MODULE 20.3: SUITABILITY, APPROACHES, LIQUIDITY, AND MONITORING IN ALLOCATING TO ALTERNATIVE INVESTMENTS

LOS 20.e: Discuss suitability considerations in allocating to alternative investments.

CFA® Program Curriculum, Volume 4, page 137

In general, alternative investments are only suitable for large investors who have or can hire the specialized knowledge necessary to select profitable investments in this asset class. Because of the wide variety and complexity of alternative investment strategies that managers pursue, an investor needs a high level of expertise to understand the risks being undertaken and the market factors that drive the success of various fund strategies.

Alternative investment strategies are largely based on the premise that skilled managers can create value through active management. For this reason, alternative investments may not be suitable for investors whose philosophy is grounded in a belief in the price-efficiency of markets.

Time (investment) horizon is a key consideration in determining the suitability of alternative investments. Private equity and private real assets are generally suitable only for investors with long time horizons (15 years or more). For investors with shorter time horizons, hedge funds with short lock-up periods and strategies that can be exited relatively quickly may be suitable. Hedge funds that focus on liquid instruments such as publicly traded equities or commodity futures are examples.

A successful alternative investments program requires that the investor has a strong governance program. The investor should have a formal investment policy with clear objectives, put decision-making power in the hands of experts, and have a reliable reporting framework.

Investors in alternative investments must be comfortable with a lower level of transparency than is generally available with traditional investments. As private partnerships, the funds are not governed by the reporting requirements that apply to publicly traded companies. When they do issue reports to investors, the level of detail varies widely and reports often arrive with a significant time lag. Many hedge funds use independent administrators to calculate their net asset values, but private equity and private real asset funds typically do not, which gives them wider discretion in asset valuation. Furthermore, private equity and private real assets may be viewed as “blind pools” in that a fund does not begin acquiring assets until investors have already committed capital to the fund.

LOS 20.f: Discuss approaches to asset allocation to alternative investments.

CFA® Program Curriculum, Volume 4, page 141

A suggested approach to including alternative investments in an asset allocation decision is to do it in two stages, first with only the traditional asset classes and then also considering alternative investments. The process can be assisted by statistical tools such as:

- Monte Carlo simulation.
- Mean-variance optimization.
- Risk factor based optimization.

These approaches can be used individually or in combination. Regardless of the approach chosen, an investor must consider the statistical properties of alternative investment returns that distinguish them from traditional asset classes.

Modeling the risk and return properties of alternative investments is challenging. Because asset valuations for many alternative investments are based on appraisals, returns data are likely to be artificially smoothed and are often stale. As a result, using these data without adjustment would underestimate risk. Testing returns data for serial correlation is a suggested method for detecting this smoothing effect. If serial correlation is present, statistical techniques exist that can be used to unsmooth the data.

The distribution of returns is also known to be non-normal, exhibiting skew and excess kurtosis to a greater extent than traditional asset classes. Here, too, the data can be adjusted with statistical methods (such as stochastic volatility, regime switching, or extreme value theory) or by using observed returns instead of an assumed normal distribution of returns. A further limitation is the relatively short history of alternative investments, which may result in small-sample and time-period biases.

One method for modeling a distribution with fat tails (positive excess kurtosis) is to define risk and return properties for two or more distinct market environments, for example, a normal period and a high-volatility period. Returns for each of these can be described with a normal distribution with its own assumed mean and variance. Combining the distributions, using an assumed probability of each environment occurring, results in a non-normal distribution.

Monte Carlo simulation has been described elsewhere in the CFA curriculum. Its use with respect to optimizing an asset allocation can be summarized as follows:

1. Decide between asset class returns or risk factors as the variables to be simulated.
2. Define how the model should behave statistically, for example by accounting for properties like mean reversion, fat-tailed distributions, or unstable correlations.
3. If the model is based on risk factors, translate them to asset class returns.
4. Use the resulting asset class return scenarios to develop meaningful outputs, such as the probability of a shortfall to a portfolio's required or target rate of return.

We introduced **mean-variance optimization** in an earlier topic review and described its use with traditional asset classes. When using this technique with alternative investments, the results may produce an excessive allocation to this asset class, particularly to illiquid investments such as private equity, especially when the data are not properly adjusted for smoothed returns. An optimization model may be designed to constrain the allocation to alternative investments (or any asset class) to be within a minimum and maximum percentage, or to limit overall volatility or downside risk.

Investors should consider the asset allocations suggested by an optimization model to be a guideline rather than a prescription. They must consider the allocation in the context of their objectives and constraints, such as their liquidity requirements. They must also be aware of the limitations of mean-variance optimization. For example, small changes in the inputs may generate significant changes in optimal asset allocations.

Risk factor based optimization is similar to MVO, but instead of modeling asset classes by their return and risk characteristics, the investor models risk factors and factor return expectations. Exposures to risk factors are optimized with respect to an overall risk budget. As with mean-variance optimization, constraints can be included in the model. In this case, the constraints are limits on specific risk factor exposures.

A risk factor based approach requires the additional step of translating the optimized risk exposures into an asset allocation. For example, both public and private equity provide exposure to economic growth risk, but the allocation to each depends on the desired exposure to liquidity risk.

One of the limitations of this approach is that asset classes' return sensitivity to some risk factor exposures might not be stable over time. Another is that correlations among risk factors may behave like correlations among asset class returns and increase during periods of financial stress.



PROFESSOR'S NOTE

The curriculum reading provides extended examples of these portfolio optimization techniques. While we do not believe the authors' empirical results are required by the Level III LOS, reviewing these examples can provide useful insights into how the techniques may be applied to asset allocation in practice.

LOS 20.g: Discuss the importance of liquidity planning in allocating to alternative investments.

CFA® Program Curriculum, Volume 4, page 164

Managing liquidity is a crucial aspect of an alternative investments program, especially one that includes private investments with near-term capital calldown periods and long

investment horizons. A portfolio must be managed in a way that meets its capital commitments while still providing required liquidity.

An investor can develop forecasting models to help manage liquidity. Examples of liquidity modeling include projecting cash flows to and from a fund and forecasting the annual capital commitments needed to reach and maintain the targeted allocation to alternative investments.

Cash flows for a typical private investment partnership are capital calls in the early years and distributions in the later years. An investor can make assumptions about how a fund will call its committed capital. A simple model might assign a percentage of remaining capital to each year of the calldown period. In this model the capital contribution in period t would be the following:

percentage to be called in period $t \times (\text{committed capital} - \text{capital previously called})$

Distributions from a fund can be modeled as percentages of its net asset value. The NAV increases with capital calls and investment returns, and decreases with distributions. To estimate distributions, an investor can assume an expected growth rate for the fund (that is, the IRR of its investments) and a percentage of NAV to be distributed in each period. Thus distributions in period t would be the following:

percentage to be distributed in period $t \times [\text{NAV in period } t - 1 \times (1 + \text{growth rate})]$

and the NAV in period t would be the following:

NAV in period $t - 1 \times (1 + \text{growth rate})$

+ contributions in period t

– distributions in period t

Using models such as these, an investor can estimate the cash flows to and from a fund. The investor should understand a model's sensitivity to changes in model assumptions and how these affect cash flow forecasts.

Liquidity forecasting is also important for managing how a portfolio reaches and maintains its target asset allocations. Take for example a \$15 billion portfolio that currently has no investments in private equity but wants to have a 10% allocation to that asset class. This is unlikely to be achievable all at once (and even if it could be, the private equity investments would not be diversified across vintage years as they should).

Instead, the allocation to private equity will need to increase toward its 10% target over a number of years. Importantly, that percentage will be based on the future values of both the overall portfolio and the private equity investments. Thus, reaching and maintaining the target allocation requires estimating these values.

Combined with the cash flow forecasting approach described previously for a particular fund, an investor can project the capital commitments needed over a span of years to reach the target allocation, and forecast the need to reinvest future distributions to maintain the target.

A crucial aspect of liquidity planning is having cash available to meet capital calls. Keeping these amounts in cash equivalents has significant opportunity costs. A suggested approach is to invest it in publicly traded securities that may be viewed as proxies for the private investments to which they are committed. For example, capital committed to

private real estate but not yet called could be invested in publicly traded real estate investment trusts.

Capital calls, distributions, growth rates, and even fund lifetimes may turn out significantly different than expected. An investor should stress-test liquidity planning models against unexpected events such as delayed fund distributions when expected distributions have been earmarked to meet capital calls.

LOS 20.h: Discuss considerations in monitoring alternative investment programs.

CFA® Program Curriculum, Volume 4, page 174

An alternative investment program must be monitored to ensure that it is achieving its stated goals in terms of return, risk, income, and safety. Its performance should be evaluated in the context of these goals, rather than simply measured against a benchmark.

Even during the period when the allocation to alternative investments is building up to its target, monitoring is necessary to ensure the investments being made are consistent with the objectives of the program. Effective monitoring is particularly important with private and illiquid investments, because these require considerable time to correct if they are out of line with the portfolio's objectives, or if the objectives have changed.

One reason that measuring against a benchmark or peer group can be misleading is the difficulty of selecting a representative one. Because many alternative investment strategies depend heavily on active management, any benchmark chosen is unlikely to be directly comparable to a portfolio's actual investments in the asset class. In addition, published indexes are often inconsistent with each other in the way they define various alternative investment strategies.

Monitoring of alternative investments can be challenging because their performance reporting can be infrequent and come with significant time lags. A further complication with private investments is that they often report internal rates of return rather than time-weighted rates of return. IRR is influenced by the timing of capital calls and distributions, and therefore, may be subject to manipulation. Investors may prefer to monitor a private fund's **multiple on invested capital** (MOIC). MOIC is calculated by dividing the value of the fund's underlying investments, plus distributions, by total invested capital. Regardless of the metric used, investors should understand how any measure is affected by issues such as stale pricing and appraisal-based valuations. Understanding a fund's investment holdings qualitatively may be the best approach to judging whether a manager is adding value.

An investor should monitor these issues with respect to an alternative investment fund's management:

- A fund's "key persons" are typically specified in its documents. Limited partners may be able to exercise certain rights if a key person leaves, and should understand the circumstances that caused the departure.
- The manager's interests should be aligned with the investor's interests. Potential conflicts may exist if the manager raises a new fund that invests in some of the same underlying holdings. If a manager withdraws capital that he had invested alongside the limited partners, they should learn the reasons.

- Because managers have a great deal of discretion over how they invest capital, investors should monitor a fund's holdings over time for signs of style drift.
- Monitoring a fund's risk management framework is important, especially for leveraged strategies.
- An investor should observe the profile of a fund's other investors and judge whether they are likely to remain committed for the long term. An unexpected increase in redemptions by other investors may be a warning sign. This could potentially put the fund in a position of having to sell its more attractive holdings to raise cash, leaving the remaining investors with less liquid or more poorly performing assets. A manager may also exercise "gates" that block further redemptions.
- A large or unexpected increase in new investors may make more capital available to a manager than he has attractive opportunities to use. If this leads the manager to pursue lesser opportunities, the performance of the fund as a whole may suffer.
- A fund should have reliable auditors, custodians, and other third-party service providers. If these relationships change, an investor should understand whether it is for a positive reason (e.g., the fund outgrows the capabilities of a service provider and needs a larger one) or otherwise (e.g., an auditor quits a relationship because of a manager's actions).



MODULE QUIZ 20.3

To best evaluate your performance, enter your quiz answers online.

1. Which class of publicly traded securities is *most likely* to be affected by similar risk factors to those that affect private credit?
 - A. REITs.
 - B. Equity securities.
 - C. High yield bonds.
2. Alternative investments are *most likely* to be suitable for a portfolio investor that:
 - A. has a strong governance program and insists on transparency.
 - B. has a long time horizon and believes financial markets are efficient.
 - C. believes active management can generate excess risk-adjusted returns over time.
3. When using optimization approaches to determine an allocation to alternative investments, recommended practices *least likely* include:
 - A. using smoothed historical data as inputs.
 - B. modeling normal and high-volatility periods separately.
 - C. placing constraints on the allocations to various asset classes.
4. A \$20 billion endowment has decided to increase its allocations to private equity and private credit from 5% each to 10% each. The endowment will *most likely* need to:
 - A. forecast the timing of capital calls and hold enough capital in cash equivalents to meet them.
 - B. account for the expected growth rate of the portfolio when planning the capital commitment.
 - C. identify suitable investment vehicles for \$100 million each of private equity and private credit.
5. Compared to an alternative investment partnership's reported internal rate of return, its multiple on invested capital is less affected by:
 - A. stale pricing.
 - B. timing of capital calls.
 - C. appraisal-based valuations.

KEY CONCEPTS

LOS 20.a

Allocating portfolio assets to alternative investments can improve the risk-adjusted return of a portfolio that includes only traditional asset classes. Private equity and private credit may be viewed primarily as return-enhancing portfolio investments. Real assets may be viewed as risk-reducing investments. Hedge funds may serve either function in a portfolio, depending on the strategies they pursue.

LOS 20.b

Whether bonds or alternative investments are better risk mitigators for an equity portfolio depends on the investor's time horizon. Over short horizons, return volatility is the predominant risk, and bond returns have a lower correlation with equity returns than do alternative investment returns. Over long horizons, the main risk is failing to achieve the target return, so alternative investments may be more suitable than bonds because of their higher expected returns.

LOS 20.c

Traditional approaches to defining the investment opportunity set may be based on asset classes' liquidity or expected performance in different scenarios for economic growth and inflation.

A liquidity-based approach would distinguish among alternative investment classes that are publicly traded, such as REITs and commodity futures, and those that are not publicly traded, such as private equity.

An approach based on expected performance would distinguish alternative investment classes that are expected to outperform in a high-growth economy, such as private equity, from those that would be expected to provide an inflation hedge, such as indexed bonds or real assets.

A risk factor based approach to defining asset classes involves statistically estimating their sensitivities to risk factors. Its advantages compared to traditional approaches are that it can identify sources of risk that are common to different asset classes (such as public and private equity) and allow a manager to analyze multiple dimensions of portfolio risk. Its limitations are that it can be difficult to communicate to decision makers and implement, and that its results may be sensitive to the historical period used in the analysis.

LOS 20.d

In addition to risk, return, and correlation, important considerations for alternative investments include investment vehicles, liquidity, expenses and fees, taxes, and the need to obtain special understanding of the asset class.

Alternative investment funds are typically structured as limited partnerships, with the manager as general partner and investors as limited partners. Investors that are not large enough to invest directly in limited partnerships often invest in funds of funds to gain exposure to alternative investments.

Liquidity concerns include lock-up periods, redemption restrictions, the opportunity cost of committed capital, and the practice of "side pocketing" to exempt some assets from a hedge fund's redemption terms.

Alternative investment funds charge management fees and incentive fees. Management fees are based on committed capital rather than called capital. Investors must ensure that a fund's activities and distributions are consistent with their tax situations.

When deciding whether to invest through funds of funds or develop an in-house program, investors should consider the expense of developing and maintaining a program, their needs for customized solutions and close control, and whether they intend to make co-investments with general partners.

LOS 20.e

Alternative investments are suitable for large investors with long time horizons, the specialized knowledge to succeed in this asset class, strong governance frameworks, comfort with a lack of transparency, and a belief that active management can create value.

LOS 20.f

Asset allocation approaches such as Monte Carlo simulation, mean-variance optimization, and risk factor based optimization can be extended to include alternative investments. However, investors must take care to adjust the data for this asset class for smoothed returns that underestimate risk, and to include constraints in their asset allocation models. Otherwise these techniques are likely to over-allocate to alternative investments.

LOS 20.g

Liquidity planning for alternative investments must be managed such that the investor meets its capital commitments. An investor can develop forecasting models to project cash flows to and from a fund and forecast the capital commitments needed to reach and maintain the targeted allocation to alternative investments. These models should be tested for sensitivity to their assumptions about the timing of capital calls, distributions, growth rates, and lifetimes of the funds.

LOS 20.h

An alternative investment program must be monitored to ensure that it is achieving its stated goals. Its performance should be evaluated in the context of these goals, rather than measured against a benchmark. An appropriate benchmark is difficult to establish for an alternative investments program because its performance depends greatly on active management by the managers chosen.

Investors in private funds may choose *multiple on invested capital* as a metric to monitor, rather than the internal rates of return reported by the funds.

Investors should monitor an alternative investment fund's key persons, risk management framework, and third-party service providers, as well as the profile of the fund's other investors. They should be alert for signs of style drift or misalignment of a manager's interests with investors' interests.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 20.1

1. **C** Alternative investments that can diversify a public equity portfolio include commercial real estate, real assets, and hedge funds that pursue non-equity-

oriented strategies. Private equity, distressed debt, and equity-oriented hedge funds are less appropriate because they are affected by many of the same risk factors as public equity. (LOS 20.a)

2. **C** Smoothing of returns and sampling biases are believed to understate the correlation of alternative investments with traditional asset classes and therefore overstate their diversification benefits. These data issues are believed to understate risk measures. Their effect on reported returns is not clear. (LOS 20.b)

Module Quiz 20.2

1. **B** A fund of one is a limited partnership structure that has only a single client. (LOS 20.d)
2. **A** Typically, in private equity limited partnerships, the limited partners commit a fixed amount of capital, which the general partner can call over a number of years as investment opportunities arise. Limited partners are responsible for having cash available to meet capital calls. General partners may call less than 100% of the committed capital. (LOS 20.d)
3. **C** Assets that are not subject to a fund's redemption terms are said to be held in a side pocket. A gate is a maximum amount an investor may redeem at one time. A lock-up is a restriction on redemptions during a period of time. (LOS 20.d)

Module Quiz 20.3

1. **C** High yield debt may be viewed as a proxy for private debt because they tend to be affected by the same risk factors. (LOS 20.c, 20.g)
2. **C** Allocating to alternative investments is most suitable for investors with long time horizons, strong governance programs, comfort with limited transparency, and a belief that active managers add value. (LOS 20.e)
3. **A** Because some alternative investments have relatively short histories of returns data, use of historical data alone may introduce time-period and small-sample biases. Unsmoothing is recommended because the data often reflect appraisal-based valuations. (LOS 20.f)
4. **B** To achieve a target allocation to alternative investments, an investor needs to account for the expected growth rate of the portfolio. Because the target will likely only be reached a number of years in the future, the commitment to the asset class will be larger than the target allocation as a percentage of today's portfolio value. Immediately investing the targeted percentage, even if enough suitable investments can be found, would lack diversification across vintage years. To reduce the opportunity cost of committed capital, cash that needs to be available if called can be invested in liquid public securities that have similar risk characteristics as their intended private investments. (LOS 20.g)
5. **B** Multiple on invested capital is less subject to manipulation of cash flow timing by a manager than IRR, but may still reflect stale pricing and appraisal-based valuations. (LOS 20.h)

TOPIC QUIZ: ALTERNATIVE INVESTMENTS

You have now finished the Alternative Investments topic section. On your Schweser online dashboard, you can find a Topic Quiz that will provide immediate feedback on how effective your study of this material has been. The test is best taken timed; allow three minutes per question. Topic Quizzes are more exam-like than typical QBank questions or module quiz questions. A score less than 70% suggests that additional review of the topic is needed.

The following is a review of the Private Wealth Management (1) principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #21.

READING 21: OVERVIEW OF PRIVATE WEALTH MANAGEMENT

Study Session 10

EXAM FOCUS

The morning exam has traditionally been heavily weighted toward investment policy statement (IPS) questions for individuals and institutions.

To answer IPS questions successfully, you must:

1. Be familiar with and understand a large number of potential issues that might apply in a given situation. These are covered in the SchweserNotes and CFA readings. There is no substitute for reading the material.
2. Carefully read and understand the facts of the case to determine which issues from Item 1 are relevant. Because each case is unique, you cannot expect to pass just by repeating what you saw as the answer to a previous question. CFA Institute says that the Level III exam is unique in requiring a high level of judgment—it is these questions where that most comes into play. You will have the opportunity to practice this as you go forward in the Schweser material.
3. Recognize that there is a process at work in developing an IPS and constructing a portfolio for a client. As the exam has required candidates to construct an IPS and then use it, we focus on this in our material.
4. The last stage is to construct a written answer that reflects Items 1, 2, and 3. This has not been required on other levels of the exam. The morning session is generally referred to as essay; however, the more precise term is constructed response. The key points that should appear in your answer have been decided, and your answer is evaluated strictly in terms of how well it makes and supports those points in a coherent fashion. Practice writing an effective constructed response answer many times before the exam.
5. A significant percentage of Level III candidates find this section frustrating because it does not meet their personal sense of consistency. Past answers are quite consistent on the main important issues, but they also include a range of random unimportant comments. The random comments are frustrating to candidates who try to repeat what they have seen in past answers. Try to move past that and learn what is expected. Up until now, the CFA exam process has primarily focused on precise mathematical techniques. The Level III material will continue to draw on those skills. However, this exam will likely test your ability to find what another trained professional would have been expected to find and write when confronted with sometimes contradictory issues.

The next pages will lay out a variety of issues with which you are expected to be familiar. They may or may not be relevant to a given portfolio question. The exam will likely test the ability to determine what is relevant to a particular case and then apply it.

MODULE 21.1: INVESTMENT CONCERNS OF PRIVATE CLIENTS AND INSTITUTIONS



LOS 21.a: Contrast private client and institutional client investment concerns.

Video covering this content is available online.

CFA® Program Curriculum, Volume 4, page 204

Private clients, such as individuals and families, have different investment concerns from institutional investors, such as pension funds, endowments, banks, and insurance companies. These investment concerns include investment objectives and constraints as well as other considerations, such as governance structure, investment sophistication, regulatory environment, and investor uniqueness and complexity.

Investment Objectives

Private clients have a *wide range of investment objectives*, such as maintaining the real value of the investment portfolio, being financially secure in retirement, and providing financial support to family members. However, *these objectives may not be precisely defined*, as the private client may not be able to quantify the size of the investment portfolio required at the start of retirement or the annual cash flows required to fund the college expenses of dependents. The investment objectives of a private client *can change over time* due to life events and/or the performance of the client's investment portfolio. In addition, certain investment objectives *may be difficult to reconcile*, such as financial security in retirement and the ability to generously fund charitable projects at the same time.

Institutional clients, on the other hand, are more likely to have *clearly defined objectives* that are usually focused on funding liabilities (e.g., defined benefit pension plans and insurance companies). The investment objectives of institutional clients also tend to remain *stable over time*.

Constraints

Private clients have different constraints from institutional clients with respect to the following:

- **Time horizon.** Private clients have *shorter* time horizons compared to institutional clients, whose time horizons can theoretically be infinite. The shorter time horizons limit the liquidity and risk-taking ability of private clients. A private client may also specify *different time horizons* for different investment objectives. In contrast, institutional clients typically have a single time horizon for a clearly defined objective.
- **Scale (or size).** Private client portfolios are usually *smaller* compared to those of institutional clients. As a result, certain asset classes, such as real estate and hedge funds, may be deemed unsuitable for private client portfolios as these investments may lead to an overly concentrated portfolio.
- **Taxes.** Taxes are an important consideration for private clients and can impact asset allocation and manager selection. In contrast, some institutional clients, such as endowments and foundations, may benefit from significant tax exemptions.

Other Considerations

Apart from investment objectives and constraints, the following investment concerns impact private clients and institutional investors in different ways:

- *Governance structure.* Institutional clients are likely to have a *formal investment governance structure*, with a board of directors and investment committee responsible for overseeing investment strategy and monitoring performance. On the other hand, private clients tend to have less formal investment governance, with a private wealth manager responsible for formulating the IPS, implementing the investment strategy, and reporting performance.
- *Investment sophistication.* Due to their formal governance structure and greater access to investment resources, institutional investors tend to be *more sophisticated* than private clients. Private clients are also more likely to display *emotional biases* in their investment decision-making, which may cause them to make suboptimal decisions.
- *Regulatory environment.* The regulatory environment for private clients and institutional investors varies greatly by jurisdiction. Some countries, like Australia and India, have the same regulator for these two investor groups, whereas other countries, like the United States, employ different regulators for each investor group.
- *Investor uniqueness and complexity.* Due to their uniqueness and complexity, individuals with similar investment objectives may choose very different investment strategies because of their different concerns and backgrounds. This is less likely to be observed with institutional investors.



MODULE QUIZ 21.1

To best evaluate your performance, enter your quiz answers online.

1. Which of the following statements is *most accurate* with respect to the difference between private and institutional clients?
 - A. Private clients are more likely to have clearly defined investment objectives compared to institutional clients.
 - B. Private clients are likely to have shorter investment horizons and smaller portfolio sizes compared to institutional clients.
 - C. Private clients are likely to have a more formal governance structure and a lower degree of investment sophistication compared to institutional clients.
2. Which of the following investments is *most likely* to be appropriate for a private client with a short investment horizon and high liquidity needs?
 - A. Global bonds.
 - B. Hedge funds.
 - C. Private equity.

MODULE 21.2: INFORMATION AND SKILLS NEEDED WHEN ADVISING PRIVATE CLIENTS



Video covering this content is available online.

LOS 21.b: Discuss information needed in advising private clients.

LOS 21.c: Identify tax considerations affecting a private client's investments.

Private wealth managers need to gather relevant client information to develop an understanding of their clients prior to formulating their investment objectives and assessing their risk tolerance.

Personal Information

Relevant personal information that a private wealth manager should determine in discussions with a client include:

- Family circumstances, including marital status and the number and age of dependents.
- Proof of client identification.
- Employment information, including future career aspirations.
- Retirement plans.
- Sources of wealth.
- Specific return or investment objectives.
- Risk tolerance.
- Investment preferences (e.g., liquidity or unique concerns).

The formulation of a client's investment objectives and risk tolerance are discussed in more depth later in the reading.

Financial Information

Wealth managers can construct a *net worth statement* of a private client to obtain a comprehensive understanding of the client's financial profile in terms of assets and liabilities.

A private client's assets on a net worth statement include:

- Cash and deposit accounts.
- Brokerage/investment accounts.
- Retirement accounts (e.g., defined contribution plan account or the present value of defined benefit pension).
- Other employee benefits (e.g., stock options).
- Stock/ownership of private companies.
- Life insurance policies with a cash value.
- Real estate.
- Other personal assets (e.g., cars, jewelry).

Liabilities on a net worth statement include:

- Consumer debt and credit card balances.
- Mortgage loans.
- Other types of debt (e.g., car loans and student loans).
- Margin debt in brokerage accounts.

Figure 21.1 illustrates a sample net worth statement for a private client.

Figure 21.1: Net Worth Statement

Assets (in thousands):		Liabilities (in thousands):	
Cash and bank deposits	500	Credit card debt	175
Brokerage account	1,500	Home mortgage	500
DC plan balance	1,450		
Home	750		
Other personal property	125		
Total Assets	4,325	Total Liabilities	675
		Total Net Worth	3,650

In addition to a client's assets and liabilities, wealth managers should seek an understanding of a client's annual income and expenses. Sources of income cash flows include a client's salary, pension income, business profits, and investment income. An analysis of income versus expenses is especially important for private clients who need to carefully budget in order to save toward their retirement goals.



PROFESSOR'S NOTE

The *economic* net worth statement extends an individual's assets to include *human capital* (present value of expected future labor income), while liabilities are extended to include *consumption* and *bequest* goals. This is covered in more detail in Reading 23.

Tax Considerations

Taxes on individuals vary by jurisdiction and must be considered in the IPS. Some general classifications of taxes are as follows:

- **Income tax.** Taxes paid on any form of income (e.g., wage, rental, dividend, interest, and capital gains).
- **Wealth-based taxes.** These include taxes paid on the value of certain types of assets (e.g., real estate) and taxes paid on the value of assets transferred to another individual through inheritance, gifts, etc.
- **Consumption tax.** These include sales taxes and value-added taxes.

Tax planning can be complex because the tax environment varies by jurisdiction. For example, some countries, like the United States, tax short-term capital gains on securities at the individual's highest marginal tax rate, while long-term capital gains on securities are usually taxed at a lower rate.

The effects of taxes must be considered when formulating the investment strategy and portfolio asset allocation for a private client. The following strategies can be used to reduce the adverse impact of taxes:

- **Tax avoidance.** This is not to be confused with illegal tax evasion. The private client can minimize taxes by utilizing investment accounts that are legally exempt from taxes on income and capital gains (e.g., Individual Savings Accounts in the United Kingdom). Some jurisdictions also allow limited gift amounts to be transferred without incurring wealth-based taxes.
- **Tax reduction.** The private client can invest in tax-free securities and/or securities that are more tax efficient (e.g., in jurisdictions where capital gains are taxed at a lower rate than income, securities that generate returns mainly as price appreciation offer the private client a lower effective tax rate).

- **Tax deferral.** The private client can minimize the compounding effect of taxes on portfolio returns by deferring the recognition of these taxes into the future. Strategies that fall under this category focus on long-term capital gains and low turnover. Tax deferral is also offered by retirement plans such as 403(b) retirement savings accounts. These retirement plans permit tax-free contributions and earnings accumulation but require taxes to be paid on withdrawals.

For the Exam: Calculations quantifying the benefits of utilizing the tax strategies previously discussed are covered in Reading 22.

Other Client Information

Additional information that a private wealth manager typically gathers for financial planning purposes includes:

- Wills and trust documents for estate planning.
- Insurance policies that the private client has taken out (e.g., life, disability).
- Service guidelines (e.g., whether the wealth manager is authorized to modify investment strategy and make trading decisions).
- Portfolio reporting requirements.
- Periodic liquidity requirements.
- Communications and information to share with other financial services professionals on behalf of the private client.

LOS 21.f: Describe technical and soft skills needed in advising private clients.

CFA® Program Curriculum, Volume 4, page 218

Private wealth managers need a combination of technical skills and soft skills to gather and utilize the information about their clients to formulate an investment strategy that will effectively address the goals, objectives, and constraints of their clients.

Technical skills include proficiency in financial planning; capital markets and asset classes; portfolio construction and monitoring; technology skills; and, in some situations, fluency in multiple languages.

Soft skills are essential for the interpersonal aspects of a client-advisor relationship and include communication and social skills, education skills, and business development and sales skills.



MODULE QUIZ 21.2

To best evaluate your performance, enter your quiz answers online.

1. Ray McPherson, CFA, is meeting with a new private client, Henrietta Gove, to plan her investment strategy. McPherson has already established that Gove is 40 years old and works in internal audit for a publicly listed company. Gove mentioned several financial objectives during their last conversation and stated that she prefers low investment volatility. Gove's income more than adequately covers her expenses, and she would like to understand how her portfolio can fund a comfortable retirement lifestyle.

List *five* additional pieces of personal information that McPherson should gather from Gove in order to prepare Gove's IPS.

2. A private wealth manager is educating her client on the importance of tax-efficient strategies. She makes the following three statements:

Statement 1: I recommend that you change the asset location of your investment in high-coupon corporate bonds from a taxable account to a retirement account that allows tax-free earnings and withdrawals.

Statement 2: You should reduce your exposure to dividend-paying equities in favor of a more tax-efficient asset class.

Statement 3: If required, you should use an account that allows tax-free earnings but requires taxes to be paid on withdrawals.

Identify the tax strategy (tax avoidance, tax deferral, or tax reduction) associated with each statement and give *one* reason for each answer.

3. Joan Cheong, CFA, just completed a portfolio review meeting with one of her private clients. Which of the following statements describes a soft skill that Cheong utilized in managing her client's portfolio?
- A. Cheong rebalanced her client's portfolio in accordance with the guidelines in her client's IPS.
 - B. Cheong updated capital market expectations for the asset classes that are suitable for her client's portfolio.
 - C. Cheong explained her client's portfolio performance in easy-to-understand terms and in her client's regional dialect.

MODULE 21.3: FORMULATING CLIENT GOALS AND EVALUATING RISK TOLERANCE



Video covering this content is available online.

LOS 21.d: Identify and formulate client goals based on client information.

CFA® Program Curriculum, Volume 4, page 212

Private wealth managers help their clients formulate and prioritize their financial goals. A private client's financial goals can be categorized into *planned goals* and *unplanned goals*.

Planned Goals

These are goals that can be *reasonably estimated* within a *specified time horizon*. Planned goals may include:

- Retirement goals (e.g., funding a comfortable existence post-retirement).
- Specific purchases (e.g., primary or secondary residence).
- Funding the education of dependents.
- Funding significant family events (e.g., wedding celebrations).
- Charitable giving.
- Wealth transfer during a private client's lifetime or at death.

Unplanned Goals

These goals are related to *unexpected financial expenditures*. Unplanned goals by their nature are more difficult to deal with because of the *uncertainty* associated with the *amount of expenditure* and/or *timing*. Examples of unplanned goals include unforeseen

expenditures related to property repairs and unexpected medical expenses that are not covered by health insurance.

The Private Wealth Manager's Role in Formulating Client Goals

Private wealth managers can assist their clients in formulating their financial goals in the following ways:

- *Quantifying goals.* A private client may need assistance to formulate specific and realistic goals when these are difficult to quantify (e.g., funding a comfortable retirement).
- *Prioritizing goals.* When a private client has goals that are difficult to reconcile (e.g., purchasing a vacation property in retirement versus providing for the education of a client's dependents), the wealth manager can help the client identify the goals that have higher priority. Note that these may not necessarily be the ones that occur earlier in the client's time horizon.
- *Changing goals.* Private clients may decide to reevaluate their financial goals after a change in their financial circumstances. Wealth managers can assist clients in this process and in modifying their investment strategy.

EXAMPLE: Formulating client goals

Bonnie DuBois, a 60-year-old U.S. citizen, has just retired after a 35-year career in the fashion industry. Through a modest lifestyle, disciplined saving, and the help of a private wealth manager, she has accumulated a \$2,000,000 diversified portfolio.

DuBois resides in a house that has been paid off for several years. She estimates she will need \$60,000 per year, with annual increases for inflation, to fund her lifestyle in retirement. One of the benefits of DuBois's past employment is comprehensive health insurance in retirement, but she is concerned that she might need long-term care in the future.

In a recent conversation with her wealth manager, she mentions her desire to help support her son Barry, his wife Betty, and their three children (ages 14, 12, and 10). Barry's and Betty's combined salaries barely meet their living expenses currently as they hold relatively junior roles in their respective employment. DuBois expects to provide them with \$30,000 per year for the next five years and states that supporting her son and his family is the most important priority for her because of its proximity timewise.

She also wishes to purchase a vacation property in five years, although she is unsure how she will fund the purchase. She has informed Barry and her wealth manager that, at her death, her estate will be gifted to a local museum.

1. Identify DuBois's planned and unplanned goals.
2. Discuss how DuBois's private wealth manager can assist her with quantifying and prioritizing her financial goals.

Answer:

1. DuBois's *planned* goals are (1) funding her lifestyle in retirement, (2) supporting her son and his family for the next five years, (3) purchasing a vacation property in the Caribbean, and (4) gifting her estate to a local museum at her death.

Her *unplanned* goals are her long-term care costs if her health deteriorates in retirement and the property repairs that may be required for her house and the vacation property in the Caribbean if purchased.

2. DuBois has quantified the retirement funding goal and the support of her son and his family. She should work with her wealth manager to quantify her goal of purchasing a vacation property and to decide on the best way to fund the purchase. She and her wealth manager should also work to quantify her goal of gifting her estate to a local museum at her death.

DuBois states that supporting her son and his family is her most important priority. Note that the timing of a financial goal should not be the primary reason for determining the priority of goals. DuBois's wealth manager needs to help her determine which of her goals are most important. If DuBois's support for her son and his family competes with her desire to purchase a vacation property and her ability to make a meaningful bequest to a local museum at her death, she should consider reevaluating her priorities.

LOS 21.e: Evaluate a private client's risk tolerance.

CFA® Program Curriculum, Volume 4, page 215

A private wealth manager needs to understand a client's risk tolerance in order to formulate an appropriate investment strategy for the client. A private client's risk orientation can be described in several ways:

- **Risk tolerance.** This reflects both the client's *willingness* and ability to take risks. The opposite of risk tolerance is *risk aversion*.
- **Risk capacity.** This addresses a private client's *ability* to take financial risks, based on the client's wealth, income, investment horizon, liquidity requirements, importance of goals, and other relevant considerations. The *higher* the risk capacity, the *greater* the ability of the client's portfolio to sustain losses without putting the client's goals in jeopardy. Risk capacity is a *more objective* measure compared to risk tolerance, which can be viewed as more of an attitude toward risk.

For the Exam: Generally, the ability to bear risk is decreased by:

- A shorter time horizon.
- Large critical goals in relation to the size of the portfolio.
- Goals that are important to the client or those that cannot be deferred.
- High liquidity needs.
- Situations where the portfolio is the sole source of support or there is an inability to losses in value.

- **Risk perception.** This is defined as a *subjective* measure of investment risk (e.g., whether a private client thinks of investment losses in absolute or percentage terms). Risk perception varies from one private client to the next; a wealth manager can play a part in influencing a client's risk perception.



PROFESSOR'S NOTE

Framing bias, a behavioral bias in which the answer given by an individual is affected by the way the question is asked or framed, is covered in Reading 1.

Private wealth managers can evaluate the risk tolerance of their clients using a combination of *questionnaires* and *conversations*. Conversations can yield additional information about a private client's risk tolerance (e.g., the client's past investment successes and failures; risk perception; and financial background and experiences) that may be difficult to obtain from questionnaires as well as enable the wealth manager to educate clients about investment risk.

When private clients have *multiple* financial goals, the wealth manager should determine the client's risk tolerance for each goal (e.g., a client may have a low risk tolerance for more important goals but higher risk tolerance for lower priority goals).



PROFESSOR'S NOTE

This is consistent with behavioral portfolio theory (covered in Reading 2), which suggests that investors construct their portfolios in layers with different return expectations and risk perceptions for each layer.



MODULE QUIZ 21.3

To best evaluate your performance, enter your quiz answers online.

1. Vivian Collins is a client of ESP Financial Advisors. She presents her personal circumstances as follows:
 - Collins is 45 years old, divorced, and has a daughter, Daija, aged 15 years.
 - Collins has worked at her current job with the government for the last 23 years and assumes that she will remain there until retirement in 20 years when she will collect her pension. Currently, her employment income comfortably covers her living expenses.
 - She wants to be able to send Daija to the college of her choice and states that this is her highest priority goal as it will happen in the next 3–6 years.
 - Collins expects her daughter to eventually marry and have children, and she would love to be able to leave something to her future grandchildren.
 - Collins expects her pension to cover most of her retirement expenses and thinks she will need \$20,000 per year from her modest investment portfolio to fund her retirement lifestyle.

Identify the issues relating to Collins's goal quantification and goal prioritization.

2. As a client of ESP Financial Advisors, Vivian Collins, age 45, expects to retire in 20 years. Her financial advisor is evaluating her risk tolerance level associated with each of the following financial goals:

- Retirement:** Collins views retirement as a long-term goal and is prepared to accept a 10%–15% drop in expected retirement spending. However, she is concerned that she might face unexpected health-related expenses in retirement.
- College fees:** Collins wants to be able to pay for her daughter's college education in the next 3–6 years. Currently, this is her highest priority goal.
- Gifting:** Collins would like to leave a gift to her grandchildren at her death.

Describe Collins's risk tolerance level associated with each of her financial goals as either *lower* or *higher*, and justify each answer.

MODULE 21.4: CAPITAL SUFFICIENCY ANALYSIS FOR CLIENT GOALS



Video covering this content is available online.

LOS 21.g: Evaluate capital sufficiency in relation to client goals.

CFA® Program Curriculum, Volume 4, page 230

Capital sufficiency (or capital needs) analysis enables private wealth managers to determine the likelihood of their clients being able to meet their financial objectives. This analysis can be performed using deterministic forecasting and Monte Carlo simulation.

Deterministic Forecasting

A traditional, deterministic, linear return analysis assumes that a private client's portfolio will achieve a *single compound annual growth* rate across the client's investment horizon. When using this approach, the wealth manager needs to establish the following inputs:

- Current value of the investment portfolio.
- Investment horizon.
- Annual return assumption (this should be based on forward-looking capital market assumptions rather than the simplistic use of historical returns).
- Contributions into the portfolio and cash flows out of the portfolio over the investment horizon.
- Impact of taxes, inflation, and investment management fees.

While deterministic forecasting is *easy to understand* and implement, its main disadvantage is that the use of a *single return assumption is not representative of the actual market volatility*.

Monte Carlo Simulation

While deterministic forecasting focuses on a single rate of return, Monte Carlo simulation allows input variables (which are similar to the inputs used with the deterministic approach) to be given a *probability distribution* to allow for real world uncertainty. If required, each asset class can be modeled with its own return and risk assumptions and the asset class's correlation with the returns of other asset classes instead of using a single portfolio return assumption. The Monte Carlo simulation then generates *a large number of independent trials*, consistent with the assumed probability distributions, with each trial showing one potential outcome at the end of the investment horizon. A wealth manager can then aggregate all the outcomes to *determine the probability that a client will achieve a financial goal* over the investment horizon. A key consideration when using Monte Carlo simulation is the *quality of the underlying assumptions* because, like any complex model, the output of a Monte Carlo simulation will only be as good as its inputs.

For the Exam: Monte Carlo simulation is also discussed in other readings. You do not know how to actually do it, so the questions are likely to focus on interpreting the results of a simulation, as illustrated in the following example.

EXAMPLE: Interpreting Monte Carlo simulation results

A private wealth manager has performed a Monte Carlo simulation for a client who wants to gift \$1,000,000 to a local art museum in 20 years. The results of the simulation for specific time intervals and percentiles are shown in Figure 21.2.

Figure 21.2: Monte Carlo Simulation Results for Client's Portfolio (Inflation Adjusted)

Percentile	Year 15 Portfolio Value	Year 20 Portfolio Value	Year 25 Portfolio Value
25th	\$890,931	\$1,339,655	\$1,977,523
50th	\$779,809	\$1,103,982	\$1,592,294
75th	\$669,433	\$883,247	\$1,204,454
Successful trials	8%	61%	89%

From Figure 21.2, the wealth manager can conclude that 61% of trials met the client's financial objective after 20 years (i.e., the probability of success is 61%). Over the same time period, 50% of trials achieved a portfolio value in excess of \$1,103,982 (the portfolio value at the 50th percentile), while 25% of trials achieved a portfolio value in excess of \$1,339,655 (the portfolio value at the 25th percentile).

Wealth managers tend to use a 75%–90% *probability of success* as a rule of thumb when advising private clients. If the probability of success is considered unacceptably low, a wealth manager could propose one or more of the following courses of action:

- Increase contributions over the investment horizon.
- Reduce the financial goal amount.
- Increase the time horizon for the financial goal.
- Pursue an investment strategy with higher expected returns while remaining within the client's risk tolerance.

While capital sufficiency analysis is a useful tool in financial planning, wealth managers should be careful not to pursue an investment strategy based only on its conclusions (it may not always be feasible to extend the time horizon for a financial goal in order to increase the probability of success).



MODULE QUIZ 21.4

To best evaluate your performance, enter your quiz answers online.

1. A private wealth manager has performed a Monte Carlo simulation for a client who wants to make a \$2 million charitable donation in 25 years. The results of the simulation for the charitable donation (adjusted for inflation) are shown in the following table.

Percentile	Year 20 Portfolio Value	Year 25 Portfolio Value	Year 30 Portfolio Value
25th	\$1,933,318	\$2,907,062	\$4,291,225
50th	\$1,692,188	\$2,495,637	\$3,455,269
75th	\$1,452,663	\$2,116,646	\$2,613,665
95th	\$1,308,705	\$1,751,233	\$2,196,357

The probability that the client's goal will be met is *closest* to:

- A. 25%.
- B. 50%.
- C. 75%.

MODULE 21.5: PRINCIPLES OF RETIREMENT PLANNING



Video covering
this content is
available online.

LOS 21.h: Discuss the principles of retirement planning.

The principles underpinning retirement planning include the retirement stage of a private client's life, the analysis of the client's financial goals in retirement, and behavioral considerations.

Retirement Stage of Life

Private wealth managers work with their clients to establish how much they should save toward their financial goals and to determine when they will be financially able to retire. Since private clients do not always have a clear idea of their financial goals in retirement, a wealth manager has a role to play in influencing the retirement plans of their clients.



PROFESSOR'S NOTE

The financial stages of a private client's life are covered in more detail in Reading 23. We reproduce some of that material later to demonstrate how a private client's *human capital* (present value of expected future labor income) and *financial capital* (all the other assets of the private clients, such as financial savings and assets and tangible assets predominantly) change over the client's lifetime.

The following overview of the financial stages of life illustrates how retirement planning should start relatively early in the private client's adult life:

Education. The private client gains knowledge and skills through formal and informal education and apprenticeships. The emphasis in this stage of life is on *developing human capital* rather than saving for retirement.

Early career. The individual enters the workforce, often starts a family, and assumes other personal responsibilities. *Saving for retirement usually begins at this stage*, although there are many other competing financial goals.

Career development. After becoming established in a career, job skills can continue to expand and upward mobility increases. Financial obligations often increase to fund the college education of children. Successful individuals generally build financial capital and retirement savings over time.

Peak accumulation. Financial capital accumulation is typically greatest in the decade before retirement as human capital is converted into financial capital. Earnings and the need to accumulate funds for retirement (including pension benefits) are high. The private client also reduces liabilities, such as mortgage debt.

Preretirement. Emphasis continues to be on accumulating financial capital for retirement and reducing liabilities.

Early retirement. Private clients depend on cash flows from pension income (and part-time employment income in some cases) and their investment portfolio to fund their retirement lifestyle.

Late retirement. Expenses on leisure activities generally decrease, but uninsured health care expenses could increase, putting more pressure on financial resources.

One of the key challenges for a private wealth manager in the retirement stages of a client's life is *determining a rate at which distributions can be made* from the client's investment portfolio that can be maintained for the remaining lifetime of the client. This needs to be an ongoing process during the client's retirement in order to ensure that the investment portfolio can fully meet the client's financial goals in retirement.

Analysis of Retirement Goals

A private client's retirement goals can be analyzed using mortality tables, annuities, and Monte Carlo simulation.

Mortality tables. A mortality table shows *life expectancy for an individual at different ages* and enables a private wealth manager to determine the probability that a client will survive to a given age.



PROFESSOR'S NOTE

The probabilities of survival change every year. They are based on the individual's current age and show the probability for the *average individual* who has attained that age.

Figure 21.3 shows a sample mortality table for a client currently aged 72 with a life expectancy of 12 years. The table shows that the client has a 44% probability of living to 85 years and a 21% probability of reaching 90 years. These probabilities can be used to weight the expected annual cash flows of a client in retirement to estimate the present value of the client's retirement spending needs. It should be noted that, since mortality tables provide survival probabilities for an average individual, they might understate the actual probability of a given private client reaching a specified age, meaning that the client is faced with *longevity risk* (i.e., the risk of outliving one's financial resources).

Figure 21.3: Sample Mortality Table

Client Age	Life Expectancy	Survival Probability
72	12.0	100%
73	11.4	97%
74	10.8	93%
75	10.2	90%
76	9.7	86%
77	9.1	82%
78	8.6	77%
79	8.1	73%
80	7.6	68%
81	7.2	64%
82	6.7	59%
83	6.3	54%
84	5.8	49%
85	5.5	44%
86	5.1	39%
87	4.7	34%
88	4.4	29%
89	4.1	25%
90	3.8	21%

Source: Adapted from 2022 CFA Level III curriculum, Volume 4, page 225, Example 6.

For the Exam: While no explicit calculations using mortality tables are required in this reading, they are used to calculate *core capital* in the retirement stage of life in a later reading.

Annuities. The present value of the client's retirement spending needs can be determined by pricing an annuity. The buyer of an annuity makes an upfront payment in exchange for receiving a series of specified payments over time. An *immediate annuity* guarantees specified monthly payments for a predetermined period, with payments beginning immediately. Other types of annuities include a *deferred annuity*, where monthly payments begin at a specified time in the future, while a *life annuity* makes monthly payments for as long as the annuity holder is alive. If a private client's retirement spending needs are expected to be relatively stable over the client's life expectancy (from mortality tables), *a life annuity can be used to reduce longevity risk* and the price of a life annuity can be used as an estimate of the amount of financial resources required to fund the client's retirement goals.

Monte Carlo simulation. Monte Carlo simulation can be used to determine the probability that a private client's investment portfolio will meet the client's financial goals in retirement. The simulation can be *tailored to the client's actual portfolio asset allocation* and *used to explore different retirement scenarios*. This flexibility is important to private wealth managers because a client's retirement spending needs are usually *more complex than fixed monthly cash flows* (e.g., the client may wish to make a charitable donation before or at death).

As previously discussed, the output of a Monte Carlo simulation will only be as good as its input assumptions. Furthermore, *while the simulation provides the probability of success, it does not usually consider the amount by which the investment portfolio falls short of the client's retirement goals*. This *shortfall magnitude* is an important consideration for retirement planning, as the client will need to resolve this shortfall (e.g., reevaluate spending needs or other financial goals in retirement).

Behavioral Considerations When Advising Retirees

For the Exam: Behavioral biases in individuals are covered in detail in Reading 1. The behavioral considerations in this reading focus primarily on *loss aversion*, *mental accounting*, and *self-control*.

Private wealth managers need to consider the following behavioral biases associated with retirees:

- **Increased loss aversion.** Compared to younger investors, retirees are likely to be more loss-averse, affecting their return assumptions and asset allocation decisions in retirement.
- **Consumption gaps.** Consumption spending by retirees tends to be *lower* than what economic studies forecast. This can be attributed to *loss aversion* and *uncertainty about future retirement spending*.
- **The annuity puzzle.** As discussed previously, life annuities can be used to reduce longevity risk. However, individuals tend to avoid buying annuities to meet their spending needs in retirement. Possible explanations for this annuity puzzle include (1) clinging on to the hope of funding a better retirement lifestyle, (2) a desire to keep control of assets, and (3) the high cost of annuities.
- **Lack of self-control.** Retirees prefer to *meet their spending needs from investment income rather than by liquidating securities*. This preference for investment income over capital appreciation can be attributed to a lack of self-control when it comes to spending.



MODULE QUIZ 21.5

To best evaluate your performance, enter your quiz answers online.

1. When analyzing a client's retirement goals, a private wealth manager considers the probability that the client will live to a certain age and then predicts the client's retirement spending requirements using the probability that the client will still be living in a given year. When combined with the client's expected annual cash flows in retirement, this approach enables the wealth manager to estimate the present value of the client's retirement spending requirements. The approach that the wealth manager is *most likely* using is:
 - A. the annuity method.
 - B. Monte Carlo simulation.
 - C. mortality tables.
2. The behavioral bias exhibited by retirees who prefer to meet their spending needs from investment income rather than by liquidating securities in their investment portfolio is *most likely* related to:
 - A. consumption gaps.
 - B. self-control bias.
 - C. heightened loss aversion.

MODULE 21.6: THE INVESTMENT POLICY STATEMENT



Video covering this content is available online.

LOS 21.i: Discuss the parts of an investment policy statement (IPS) for a private client.

LOS 21.j: Prepare the investment objectives section of an IPS for a private client.

LOS 21.k: Evaluate and recommend improvements to an IPS for a private client.

CFA® Program Curriculum, Volume 4, page 227

The IPS documents a private client's investment objectives, risk tolerance, investment time horizon, liquidity preferences, and any other preferences or constraints. The private wealth manager uses this information to construct the client's investment portfolio given the prevailing capital market conditions.

An IPS for a private client usually covers the following areas:

- Client background and investment objectives.
- Key investment parameters.
- Portfolio asset allocation.
- Portfolio management and implementation.
- Duties and responsibilities of the private wealth manager.

Client Background and Investment Objectives

A private client's background details are obtained from *personal*, *financial*, and *tax* information that the wealth manager has gathered on the client (discussed earlier in the reading). As part of the client's background, the private wealth manager should determine all the components of a client's investment portfolio as well as any other financial assets that the client may be holding outside the portfolio (e.g., with a different wealth manager) and cash flows from external sources (e.g., defined benefit pension).

We have already seen that clients may have *planned* and *unplanned* financial goals and objectives, which may be *ongoing* or *one-off* in nature. The private wealth manager should work with a client to *quantify* investment objectives wherever possible and reconcile *competing* objectives should they arise. Where a client has *multiple* objectives, the wealth manager can help the client *prioritize* these objectives into *primary* and *secondary* objectives.

As already discussed, a wealth manager can use *capital sufficiency* (or capital needs) *analysis* to determine the likelihood of their clients being able to meet their financial objectives and, where necessary, help clients revise these objectives to make them more realistic.

For the Exam: Past exam questions have required candidates to specify risk and return objectives when preparing an IPS. In this reading, you are required to prepare investment objectives separately from risk tolerance, which is considered under investment parameters.

EXAMPLE: Preparing client investment objectives

William Elam recently inherited \$750,000 in cash from his father's estate and has come to Alan Schneider, CFA, for investment advice. Both William and his wife, Elizabeth, are 30 years old. William is employed as a factory worker and has an annual salary of \$50,000. Although he receives total health care coverage for himself and his family, he makes no contributions to his firm's defined benefit pension plan and is not yet vested in any of the company's other retirement benefits. Elizabeth is an early childhood teacher with a salary of \$38,000. She has only very recently opened a tax-deferred 403(b) retirement savings account. They have three children, aged eight, five, and three. They have a small savings account, no investments other than Elizabeth's retirement account, and credit card debt of \$20,000.

When interviewed, William makes the following statements:

- "With a family of five, our combined salaries just meet our living expenses. It would be safe to assume that both our salaries and expenses will grow only at the rate of inflation."
- "We do not want to use our new wealth to improve our current lifestyle. Instead, we would like to grow the investment portfolio so that we can send our children to college and fund our retirement lifestyle when we stop working in 30 years."
- "We also want to set up a trust fund in the future for our children."

What are the key issues that Schneider should consider when preparing the investment objectives section of William's IPS?

Answer:

The purpose of William's investment portfolio is to pay for his children's college education, fund the retirement of him and Elizabeth, and set up a trust fund for his children. William has stated they do not want to use his inheritance to improve their current lifestyle. Since William and Elizabeth earn an income that covers their living expenses on an inflation-adjusted basis, distributions from the investment portfolio will begin when their children commence their college education in approximately 10 years (apart from paying off their credit card immediately). After paying for their children's college education, the couple will require distributions from the investment portfolio to set up the trust fund for their children and to fund their retirement.

Schneider should help the Elams *quantify* and *prioritize* their multiple investment objectives. He could use capital sufficiency analysis to determine the likelihood of these competing objectives being met given the size of the investment portfolio. He should also help them reevaluate and revise their current objectives if these objectives are not supported by capital sufficiency analysis.

Key Investment Parameters

A client's risk tolerance, time horizon, investment preferences, and constraints are covered in this section.

Risk tolerance. As discussed previously, risk tolerance considers a client's willingness and ability to accept investment risk. Generally, a client has a *low risk tolerance for more important goals* but higher risk tolerance for lower priority goals. An additional consideration is the proximity of the client's goals, with *near-term goals associated with lower risk tolerance* compared to longer-term goals. The process of evaluating a client's risk tolerance (e.g., questionnaires and/or conversations) is also covered in this section.

Time horizon. The investment horizon is often described as a *range* (e.g., in excess of 15 years for a long investment horizon or less than 10 years for a short horizon) rather than a specific length of time. Clients with multiple objectives can also have a different time horizon for each objective.

EXAMPLE: Time horizon

How should Schneider describe William's time horizon in the previous example?

Answer:

William has multiple objectives with different time horizons. The time horizon related to funding his children's college education exceeds 10 years. Assuming a trust fund is set up for his children after their college education, this time horizon is likely to exceed 20 years. Finally, the time horizon associated with retirement funding exceeds 30 years.

Asset class preferences. This section should list the *acceptable* asset classes for the client's portfolio (or alternatively asset classes that are unsuitable for the client), together with the risk-return characteristics of each asset class.

Liquidity preferences. Liquidity needs that have not been specified in the *Client Background and Objectives* section should be included here (e.g., the need for a cash reserve). A private wealth manager should also include liquidity preferences that may restrict investment in certain asset classes (e.g., a client's preference for dividend income may preclude investment in the stock of small, growth companies).

Other investment preferences. Some unique preferences include a concentrated position in a single stock (due to past employment or inheritance) and ethical investing.

Constraints. These client constraints restrict a private wealth manager's choice of investments or strategies for the client's portfolio (e.g., a client's preference for ethical investing).

For the Exam: Past exam questions have required candidates to analyze a private client's time horizon, liquidity needs, taxes, legal and regulatory considerations, and unique preferences as investment constraints. *In this reading, risk tolerance, time horizon, liquidity preferences, other investment preferences, and constraints are analyzed as investment parameters, while taxes are included as part of the client's financial background information.*

For the most part, you are provided with all the relevant information for a client's investment parameters in the story. A typical question might require you to address all the previously mentioned investment parameters in 10–12 minutes. You should give a brief factual answer for each parameter, supported by relevant facts from the story. If there are no issues to address for a particular parameter, say so in the answer rather than leaving it blank.

Alternatively, a question may only ask you to address specific investment parameters and assign more minutes for each parameter. In this case, only address what is requested and provide more detail in your answer.

Portfolio Asset Allocation

This section describes the asset allocation approach that the private wealth manager will use for the client's investment portfolio. *Strategic* asset allocation indicates a long-term target allocation for each asset class, with the portfolio being rebalanced periodically to maintain the target allocation. *Tactical* asset allocation is an active management strategy that normally specifies a range for each asset class rather than a specific target allocation percentage.

Portfolio Management and Implementation

In order to effectively manage a client's investment portfolio on an ongoing basis, the private wealth manager needs clear guidance on the following issues:

Discretionary authority. This specifies the ability of the private wealth manager to take investment actions without first seeking the client's approval. Some clients give their wealth managers *full* discretion, whereas others prefer to *limit* discretionary authority to prespecified actions (such as rebalancing the portfolio in line with the agreed range for each asset class). A wealth manager providing a *nondiscretionary* service can make investment recommendations but is unable to act on the recommendation without client approval.

Rebalancing. The approach to rebalancing a client's investment portfolio should be clearly specified in the IPS. A *time-based* rebalancing (e.g., quarterly, semiannual, or annual rebalancing) does not consider deviations between actual and target asset class percentages, whereas a *threshold-based* rebalancing approach means that the portfolio is rebalanced once actual asset class weights deviate from target weights by a prespecified amount.

Tactical changes. The IPS should clearly state if a private wealth manager is given discretionary authority to undertake tactical asset allocation changes. The IPS should clearly state the acceptable range of weights for each asset class as well as the extent to which the manager is allowed to go beyond the upper or lower bounds when making tactical changes.

Implementation. This section covers information about acceptable investment vehicles (e.g., the use of in-house and/or external money managers, ETFs, mutual funds) and the due diligence process for making investment decisions.

Duties and Responsibilities of the Private Wealth Manager

The general responsibilities of a private wealth manager in helping a client meet their investment objectives are detailed in this section. These responsibilities include:

- Formulating and reviewing the IPS, including frequency of review.
- Recommending or selecting investment options and constructing the investment portfolio's asset allocation.
- Monitoring and rebalancing the portfolio.
- Monitoring portfolio implementation costs.
- Monitoring the third-party service providers.
- Reporting portfolio performance.
- Reporting taxes and financial statements.
- Voting proxies.

IPS Appendix

This section includes details of items that typically change more frequently than other sections of the IPS, such as the following:

- *Modeled portfolio performance.* This typically describes a range of possible portfolio outcomes over different investment horizons as well as a distribution of returns at specific percentiles.
- *Capital market expectations.* This covers the expected return, risk, and correlations of the asset classes that the private wealth manager can include in a client's portfolio.

The following example illustrates how you could be tested on an IPS for a private client. The nature of constructed response questions gives you some latitude in developing an acceptable answer and, in some cases, there may be more than one acceptable answer. You will be graded on whether you answer the questions in a way that is consistent with what is taught in the curriculum.

EXAMPLE: Evaluating an IPS for a private client

Bonnie DuBois, a 65-year-old U.S. citizen, has been retired for 5 years. Over that period, she has helped to support her son, Barry, and his family. DuBois's son and his wife, Betty, have both received significant promotions, so they no longer require her support.

DuBois is meeting with her financial advisor, Begren Knutsen, CFA, to determine if and how her IPS should be altered. She does not intend to change her modest lifestyle, and since she no longer needs to provide financial support to her son and his family, DuBois will instead plan bequests. She also specifies that the portion of the portfolio allocated to equities should use only domestic equities.

When Knutsen reviewed DuBois's IPS a year ago, she did not recommend any changes to the IPS or investment strategy. The value of DuBois's portfolio remains unchanged at \$2 million. DuBois and Knutsen estimate her investment horizon will exceed 15 years. DuBois's highest priority is to be able to withdraw \$75,000 per year on an inflation-adjusted basis to cover her living expenses. As unexpected expenses are likely to increase, she states the portfolio's cash reserve should be raised to \$25,000. She also plans to leave a bequest of \$1.2 million each to her son and to a local museum (\$2.4 million in total) at her death.

Knutsen and DuBois have agreed to review her objectives, investment parameters, and asset allocation considerations at this meeting so that Knutsen can model DuBois's portfolio behavior with updated capital market assumptions. The sections of DuBois's current IPS that will be discussed at the meeting are shown in Figure 21.4. DuBois does not require any changes to be made to the *Portfolio Management, Responsibilities, and Review* sections of her IPS.

Discuss the changes that Knutsen should make to DuBois's original IPS to incorporate her *new retirement objectives* and *investment preferences*. You are *not* required to provide any specific asset class weights for the portfolio asset allocation as part of your answer.

Figure 21.4: Excerpts From Bonnie DuBois's Original Investment Policy Statement

Background and Investment Objectives

This investment policy statement (IPS) has been created for Bonnie DuBois for the purpose of meeting her financial objectives. It outlines her objectives and investment parameters, recommends an investment strategy for achieving these objectives, and details ongoing duties and responsibilities.

The objectives of this portfolio are to support the retirement lifestyle of DuBois, support her son and his family for one year, and gift her estate to a local museum at her death. The financial support for her son and his family is her primary objective, followed by the maintenance of her current lifestyle and her charitable donation at death. In order to achieve these objectives, DuBois anticipates needing her

portfolio to distribute \$90,000 per year on an inflation-adjusted basis. DuBois has not specified a specific monetary amount that she intends to gift to a local museum at death. The wealth manager will work with DuBois on an ongoing basis to quantify this objective.

DuBois's current portfolio of \$2 million is held in a taxable account and a tax-deferred account. Expected cash distributions have been given due consideration when constructing her portfolio asset allocation. As her investment horizon is relatively long-term, she is seeking to achieve a higher rate of return commensurate with her risk tolerance.

Investment Parameters

Risk tolerance. DuBois is able and willing to accept volatility in the short and medium term. She acknowledges that this risk tolerance has been reflected in her current asset allocation.

Investment horizon. DuBois has an investment horizon that exceeds 15 years.

Asset class preferences. DuBois and her wealth manager have determined that the following asset classes are appropriate for her portfolio:

- Cash and money market instruments.
- Domestic government bonds.
- Domestic corporate bonds.
- Global government bonds.
- Domestic equities.
- Global equities.
- Domestic real estate securities.
- Commodities.

Other investment preferences. DuBois wishes to maintain her position in Chic Apparel, Inc., where she spent most of her 35-year career in the fashion industry before retiring. This position does not represent a significant concentration risk in her portfolio and stocks of Chic Apparel are actively traded on the domestic stock exchange.

Liquidity preferences. DuBois wishes to maintain a \$10,000 cash reserve within her portfolio.

Constraints. DuBois's position in Chic Apparel has significant embedded capital gains.

Portfolio Asset Allocation (Strategic Allocation With Rebalancing Limits Provided in Brackets)

Cash and money market instruments	5% (4%–6%)
Domestic government bonds	10% (8%–12%)
Domestic corporate bonds	10% (8%–12%)
Global government bonds	10% (8%–12%)
Domestic equities	40% (35%–45%)
Global equities	10% (8%–12%)
Domestic real estate securities	10% (8%–12%)
Commodities	5% (4%–6%)

Answer:

DuBois's IPS needs to be modified to reflect her new investment objectives and parameters. These changes are detailed later.

Background and Investment Objectives

Since DuBois no longer needs to support her son and his family, her primary objective is now her retirement lifestyle. She also plans to leave a bequest of \$1.2 million each to her son and to a local museum..

The second paragraph of the *Background and Investment Objectives* section of her current IPS should be modified as follows:

The objectives of this portfolio are to support the retirement lifestyle of DuBois and to leave a bequest of \$1.2 million each to her son and a local museum (\$2.4 million in total) at her death. The financial maintenance of her retirement lifestyle is her primary objective, followed by the bequests to her son and a local museum at death. DuBois anticipates needing her portfolio to distribute \$75,000 per year on an inflation-adjusted basis to cover her living expenses. The wealth manager will work with DuBois to ensure that her portfolio distribution rate is

sustainable throughout retirement and reevaluate her other financial objectives if these are not supported by capital sufficiency analysis.

Investment Parameters

Risk tolerance. No changes required.

Investment horizon. No changes required, as it is still reasonable to expect her investment horizon to exceed 15 years.

Asset class preferences. DuBois states that her portfolio allocation to equities should only consist of domestic equities. Her wealth manager should advise her on the potential return and diversification implications of her decision. Mean-variance optimization of DuBois's portfolio should incorporate the constraint on investment in foreign equities.

The wording for asset class preferences should be modified as follows:

DuBois and her wealth manager have determined that the following asset classes are appropriate for her portfolio:

- Cash and money market instruments.
- Domestic government bonds.
- Domestic corporate bonds.
- Global government bonds.
- Domestic equities.
- Domestic real estate securities.
- Commodities.

Other investment preferences. No changes required.

Liquidity preferences. DuBois wishes to increase the cash reserve from \$10,000 to \$25,000. This change should be clearly stated as follows:

DuBois wishes to maintain a \$25,000 cash reserve within her portfolio.

Constraints. This section should be modified as follows to incorporate the constraint on investment in foreign equities:

DuBois's portfolio allocation to equities should consist only of domestic equities. DuBois's position in Chic Apparel has significant embedded capital gains.



MODULE QUIZ 21.6

To best evaluate your performance, enter your quiz answers online.

1. A private wealth manager has gathered the following information from a new client:

Risk tolerance:	Low
Liquidity needs:	\$2 million for purchase of holiday apartment in 2 years
Asset class preferences:	No investment in commodities and hedge funds

What information is *most likely* to be included in the *Investment Objectives* section of the client's IPS?

- A. Low risk tolerance.
 - B. \$2 million purchase of holiday apartment in 2 years.
 - C. Investments in commodities and hedge funds have not been approved by client.
2. Which of the following investment considerations is *most likely* to be included as a constraint in a client's IPS?
- A. ESG investing.
 - B. Time horizon.

- C. Liquidity preferences.
3. Which of the following items is *most likely* to be included in the *Portfolio Management* section of a client's IPS?
 - A. Capital market expectations.
 - B. Modeled portfolio behavior.
 - C. Portfolio rebalancing methodology.
 4. The requirement for a client's investment portfolio to hold a cash reserve and/or constraint on asset class selection because of the need to sell the portfolio relatively quickly is *most likely* to be included in:
 - A. the *Liquidity Preferences* section of the client's IPS.
 - B. the *Other Investment Preferences* section of the client's IPS.
 - C. the *Portfolio Asset Allocation* section of the client's IPS.
 5. Vivian Collins is a client of ESP Financial Advisors. She is 45 years old and expects to retire in 20 years. Her financial advisor has determined that Collins has the following financial goals:

Retirement: Collins views retirement as a long-term goal and is prepared to accept a 10%–15% drop in expected retirement spending. However, she is concerned that she might face unexpected health-related expenses in retirement.

College fees: Collins wants to be able to pay for her daughter's college education in the next 3–6 years. Currently, this is her highest priority goal.

Gifting: Collins would like to leave a gift to her grandchildren at her death.

Which of the following descriptions of Collins's investment time horizon is her financial advisor *most likely* to include in her IPS?

- A. Collins has a long horizon of 35 years, as she would expect to survive until 80 years old.
- B. Collins has multiple time horizons: the college fees goal has a time horizon of 3 years, the retirement goal has a time horizon of 20 years, and the gifting goal has a time horizon of 35 years.
- C. Collins has multiple time horizons: the college fees goal has a time horizon exceeding 3 years, the retirement goal has a time horizon exceeding 20 years, and the gifting goal has a time horizon exceeding 35 years.

MODULE 21.7: PORTFOLIO CONSTRUCTION



LOS 21.1: Recommend and justify portfolio allocations and investments for a private client.

Video covering this content is available online.

CFA® Program Curriculum, Volume 4, page 223

After developing a private client's IPS, a wealth manager constructs the client's investment portfolio to implement the client's investment strategy. A traditional approach and a goals-based investing approach to portfolio construction are discussed next.

Traditional Approach to Portfolio Construction

The traditional approach to constructing a private client's portfolio views risk in an *overall portfolio* context and consists of the following steps:

- Identify appropriate asset classes for the client's portfolio.

- Develop capital market expectations (i.e., expected returns, standard deviations, and correlations of asset classes).
- Determine asset class weights for the portfolio, consistent with the client's risk tolerance for the *overall* portfolio.

For the Exam: Asset allocation approaches, such as mean-variance optimization (MVO) and Monte Carlo simulation, are covered in an earlier reading. A private wealth manager can use these approaches to establish an *optimal* portfolio that maximizes expected return for a specified level of risk consistent with a client's risk tolerance. As the optimal portfolio may include asset class allocations that are impractical to implement, the wealth manager may need to specify *asset class constraints* in the optimization process. The wealth manager *may also need to modify the optimal asset class weights to incorporate client preferences* (while remaining within acceptable risk limits) in the recommended portfolio allocation.

- Assess investment constraints (e.g., a client's preference for ethical investing) that may limit the wealth manager's choice of investments.
- Implement the portfolio.

For the Exam: Key considerations when implementing the portfolio include:

- Use of active or passive management (or a combination) for each asset class.
- Degree of focus on specific sectors of each asset class (e.g., style factors for equity and credit quality for fixed income).
- Manager selection.
- Use of individual securities or pooled investment vehicles.
- Degree of hedging required (e.g., for currency exposure).
- Choosing asset location (e.g., placing investments that generate significant levels of taxable income into accounts that offer tax exemption).

EXAMPLE: Traditional approach to portfolio construction

Max Davidson is a 45-year-old heart surgeon who plans to retire in 15 years. Davidson is generally conservative with his investments and does not like portfolio volatility. His private wealth manager, Janine Becker, CFA, has determined that a portfolio standard deviation of 8% would be acceptable to Davidson. Davidson has stated a preference for bonds and large-cap equities in his investment portfolio.

Becker decides to use MVO to determine the optimal asset allocation for Davidson's portfolio based on the capital market expectations that she has developed. She specifies a minimum weight of 5% for real estate in the optimization because of its potential diversification benefits. She then modifies the optimal portfolio allocation to take into account Davidson's preferences. The optimal and recommended asset allocations for Davidson's portfolio are shown in Figure 21.5.

Figure 21.5: Asset Allocation for the Davidson Portfolio (Traditional Approach)

Asset Class	Allocation From MVO	Recommended Allocation
U.S. government bonds	32.5%	32.5%
Other investment-grade bonds	22.5%	25.0%
Large-cap equities	20.2%	25.0%
Other equities	14.8%	12.5%
Real estate	10.0%	5.0%
Total	100.0%	100.0%
Expected return	6.0%	5.9%
Volatility (in terms of standard deviation)	8.0%	8.0%

Goals-Based Investing

Goals-based investing essentially follows the same steps as the traditional approach to portfolio construction, the critical difference being that instead of constructing a single portfolio, the private wealth manager creates *separate portfolios for each of the client's goals*. Mean-variance optimization, which can be structured to maximize expected returns for a given level of risk or to meet a specified probability of success, is carried out for each goal portfolio rather than for the entire portfolio.



PROFESSOR'S NOTE

This is another illustration of behavioral portfolio theory (covered in Reading 2), which suggests that investors construct their portfolios in layers with different return expectations and risk perceptions for each layer.

With goals-based investing, clients may find it *easier to specify their risk tolerance*, as this is expressed for each goal portfolio rather than for the client's entire portfolio. A key *disadvantage* of this approach is that the client's entire portfolio may not be mean-variance efficient. This is because the overall allocation of the entire portfolio will depend on the aggregated asset class allocations of the goal portfolios and is unlikely to be as well diversified as the optimal portfolio obtained using the traditional approach.

EXAMPLE: Goals-based investing

Suppose that, in addition to the information from the previous example, Davidson tells Becker that he has two important goals:

- Funding his daughter's college education in 5 years.
- Purchasing an annuity in 15 years to supplement the pension income that he will receive when he retires.

Davidson's current portfolio is valued at \$4 million. He estimates that he will need \$400,000 to fund his daughter's college education and wants low volatility for this goal. He is prepared to accept higher volatility for his other goal.

Becker uses a goals-based investing approach to construct two goal portfolios for Davidson, as shown in Figure 21.6. In this example, using a goals-based approach has the advantage of enabling Davidson to express his risk tolerance for the college education goal directly.

Figure 21.6: Asset Allocation for the Davidson Portfolio (Goals-Based Investing)

Asset Class	Allocation for College Education Portfolio	Allocation for Annuity Portfolio	Overall Portfolio Allocation
U.S. government bonds	46.0%	31.0%	32.5%
Other investment-grade bonds	34.0%	24.0%	25.0%
Large-cap equities	11.5%	26.5%	25.0%
Other equities	3.5%	13.5%	12.5%
Real estate	5.0%	5.0%	5.0%
Total	100.0%	100.0%	100.0%
Expected return	4.5%	6.0%	5.9%
Volatility (in terms of standard deviation)	4.7%	8.5%	8.0%



MODULE QUIZ 21.7

To best evaluate your performance, enter your quiz answers online.

- Rayyan Patel, CFA, has performed MVO to determine the optimal asset allocation for a client's portfolio, having determined that the maximum portfolio volatility that the client can tolerate is 9%. The MVO portfolio allocation together with three alternative portfolio allocations that Patel is considering are shown in the following table.

Asset Class	Allocation from MVO	Alternative 1 Allocation	Alternative 2 Allocation	Alternative 3 Allocation
Investment-grade bonds	30.5%	35.0%	32.0%	30.0%
High-yield bonds	15.0%	12.0%	10.0%	15.0%
U.S. equities	38.2%	38.0%	30.0%	20.0%
Other (non-U.S.) equities	12.8%	10.0%	20.0%	25.0%
Commodities	3.5%	5.0%	8.0%	10.0%
Total	100.0%	100.0%	100.0%	100.0%
Expected return	6.5%	6.1%	6.4%	6.6%
Volatility (in terms of standard deviation)	9.0%	8.7%	8.9%	9.2%

If Patel wants to adjust the portfolio allocation to incorporate his client's preference for non-U.S. equities and alternative investments, which of the following portfolio allocations is he *most likely* to recommend to his client?

- Alternative 1.
- Alternative 2.
- Alternative 3.

MODULE 21.8: PORTFOLIO REPORTING AND REVIEW, AND EVALUATING AN INVESTMENT PROGRAM



Video covering this content is available online.

LOS 21.m: Describe effective practices in portfolio reporting and review.

CFA® Program Curriculum, Volume 4, page 241

Portfolio reporting enables private clients to understand how their investment portfolio is performing and whether their financial goals are likely to be achieved. It provides a basis for a private wealth manager to review a client's IPS and investment strategy with the client to determine if changes are required to achieve the client's goals.

Portfolio Reporting

A portfolio report for a private client typically includes the following items:

- Performance summary for the current period.
- Market commentary for the current period to provide context for the portfolio's performance.
- Portfolio asset allocation at the end of the current period, including strategic asset allocation weights or tactical asset class target ranges.
- Detailed performance of asset classes and individual securities.
- Benchmark report comparing asset class and overall portfolio performance to appropriate benchmarks.
- Historical performance of client's investment portfolio since inception.
- Transaction details for the current period (e.g., contributions, withdrawals, interest, dividends, and capital appreciation).
- Purchase and sale report for the current period.
- Impact of currency exposure and exchange-rate fluctuations.
- Progress toward meeting goal portfolios when using a goals-based investing approach.

For the Exam: Be prepared to identify three or four items from the preceding list that could be added to a client's portfolio report to improve the client's understanding of portfolio performance.

Note that the *horizon mismatch* between quarterly (or annual) portfolio reports and the significantly longer investment horizon of a client can potentially distort a client's perception of the portfolio's long-term effectiveness. The portfolio reporting and review process enables the private wealth manager to provide context to investment performance for the current period and to manage a client's expectations appropriately.

Portfolio Review

A portfolio review enables the private wealth manager to reassess a client's IPS and investment strategy in light of recent performance to determine if changes are required. A portfolio review typically addresses the following areas:

- Appropriateness of client's existing goals and investment parameters and if any changes are required.
- Rebalancing of portfolio asset allocation to target allocation or ranges.
- Any changes to the wealth manager's ongoing management of the portfolio (e.g., degree of discretionary authority).

- Any changes or updates in the wealth manager's duties and responsibilities.
- Any changes to IPS and portfolio review frequency.

LOS 21.n: Evaluate the success of an investment program for a private client.

CFA® Program Curriculum, Volume 4, page 244

The degree to which a private client's investment program is considered a success is measured in terms of three criteria: goal achievement, process consistency, and portfolio performance.

Goal Achievement

An investment program is considered a success if it *fulfills a client's goals within the specified risk parameter*. Due to the ongoing nature of the investment program, the criteria for success should be whether it is *still likely to meet the client's longer-term goals* (e.g., using capital sufficiency analysis) *without a significant change in the original strategy*. For example, an investment program that now requires a client to contribute a much larger amount per year (compared to the original investment plan) toward a goal of achieving a lump sum target at retirement is unlikely to be considered a success.

Process Consistency

The success of an investment program depends on the consistency of processes that the manager uses. The following issues are typically considered in evaluating process consistency:

- Has the wealth manager implemented an investment strategy that is consistent with the client's goals and investment preferences?
- Is the wealth manager maintaining regular communications with the client to assess the need for changes to the IPS?
- How have recommended third-party investment managers performed relative to their benchmarks?
- What is the impact of recommended fund manager switches on portfolio performance?
- How has the use of tactical asset allocation affected portfolio performance (if applicable)?
- Has the rebalancing process followed IPS guidelines?
- What tax-efficient strategies have been employed for the portfolio?
- How has the wealth manager tried to reduce portfolio costs and expenses?

Portfolio Performance

Portfolio performance can be measured against an *absolute* performance benchmark (e.g., 5% fixed return) or *relative* to a passive benchmark (e.g., return on a domestic stock index). The impact of investment risk can be evaluated by comparing the *risk-adjusted return* (e.g., Sharpe ratio) of the client's portfolio and an appropriate benchmark and by comparing the portfolio's *downside risk* with the client's risk tolerance. Private wealth managers need to recognize that clients generally prefer to evaluate portfolio performance against benchmarks that they are familiar with (such as domestic equity

indexes) and take this preference into consideration in the portfolio construction, reporting, and review process.

Definition of success. Private wealth managers and their clients should ideally agree on the measures of success at the inception of the investment program (e.g., whether to measure portfolio performance in absolute or relative terms) to avoid misunderstandings further down the line.

For the Exam: Questions are likely to ask you to evaluate a client's investment program against the three criteria previously discussed. An investment program can be said to be successful only if it achieves success on *all* three criteria.

EXAMPLE: Evaluating an investment program

Jamie George, CFA, has worked as a private wealth manager for Susan Montana for the last 15 years. Montana's goals have not changed over time, and she expects to retire in five years. The primary goals for her investment portfolio are to support her retirement lifestyle and to make an annual donation to her favorite charity in retirement.

Montana's portfolio has outperformed its benchmark by 0.2% over this period, while portfolio volatility has been slightly lower than the benchmark. The portfolio's return has also exceeded the rate of return that George used in the capital sufficiency analysis of Montana's portfolio 15 years ago. The output of his most recent capital sufficiency analysis indicates that the current portfolio and investment strategy are very likely to meet Montana's future goals.

After reviewing her IPS, Montana concludes that George has followed the process stated in the IPS. George has maintained an ongoing dialog with Montana, followed rebalancing guidelines, and reduced trading costs over time.

Evaluate the success of Montana's investment program under George's management.

Answer:

Montana's investment program has been successful when assessed against the following criteria:

- **Goal achievement**—Montana's portfolio return has exceeded the rate of return that George used in the original capital sufficiency analysis, and the output of his most recent capital sufficiency analysis indicates that the investment strategy is very likely to meet her future goals without the need for any meaningful changes.
- **Process consistency**—George has followed a consistent process in managing Montana's portfolio. This includes maintaining an ongoing dialog with Montana, following rebalancing guidelines, and reducing trading costs over time.
- **Portfolio performance**—Montana's portfolio has outperformed its benchmark over the last 15 years, with lower volatility compared to the benchmark.



MODULE QUIZ 21.8

To best evaluate your performance, enter your quiz answers online.

1. Zach Bond, CFA, provides quarterly portfolio reports to his clients. Each portfolio report contains the following information:
 - Performance summary for the current quarter.
 - Portfolio asset allocation at the end of the quarter, including strategic asset allocation weights or tactical asset class target ranges.
 - Detailed performance of asset classes and individual securities.
 - Benchmark report comparing asset class and overall portfolio performance to appropriate benchmarks.

List four additional items that Bond could provide to improve the quality of the portfolio reports that he prepares for his clients.

2. Christine Tan is preparing to meet Zach Bond, CFA, who has acted as her wealth manager for the last 20 years. Over this period, her portfolio has earned a 6% compound annual return, matching the annual return modeled by Bond in his capital sufficiency analysis of Tan's portfolio 20 years ago. The output of his most recent capital sufficiency analysis indicates that the current portfolio and investment strategy are very likely to meet Tan's future financial objectives. Tan's portfolio return has underperformed its benchmark by 0.3% over this period, while matching the benchmark's volatility. Tan notes that Bond has followed the guidelines laid out in her IPS in relation to ongoing communications, rebalancing methodology, tax strategies, and implementation costs.

Tan is *most likely* to conclude that her investment program has:

- A. failed because it has not met all three criteria of a successful investment program.
- B. been a success because it has met two out of the three criteria of a successful investment program.
- C. been a success because it has met all three criteria of a successful investment program.

MODULE 21.9: ETHICAL AND COMPLIANCE CONSIDERATIONS, AND PRIVATE CLIENT SEGMENTS



Video covering this content is available online.

LOS 21.o: Discuss ethical and compliance considerations in advising private clients.

CFA® Program Curriculum, Volume 4, page 247

Private wealth managers need to fulfill many ethical and compliance requirements when advising their clients and managing their investment portfolios. These requirements are briefly discussed in the following sections.

Ethical Considerations

A private wealth manager should use the CFA Institute Code of Ethics and Standards of Professional Conduct as a basis for managing and resolving ethical issues and conflicts. Some of the more relevant ethical considerations are listed here:

Fiduciary duty and suitability. Assessing the suitability of potential investments for a private client is an important component of a wealth manager's fiduciary duty. Fiduciary duty and suitability considerations are covered in the following Standards of Professional Conduct:

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

Know your customer. The know your customer (KYC) rule requires private wealth managers to obtain relevant personal and financial information about their clients for portfolio management purposes as well as for regulatory compliance (e.g., money laundering investigations). KYC requirements are covered in Standard III(C) *Suitability*.

Confidentiality. Client confidentiality is a key tenet of a wealth manager–client relationship and can be a challenge when a private wealth manager's clients are known

to each other (e.g., business associates). Standard III(E) *Preservation of Confidentiality* deals with the main considerations in client confidentiality.

Conflicts of interest. Private wealth managers may face potential conflicts of interest if their fee- or commission-based compensation structure influences the provision of investment advice and recommendations to their clients. Relevant considerations are covered in Standard I(B) *Independence and Objectivity* and Standard VI(A) *Disclosure of Conflicts*.

EXAMPLE: Ethical considerations

Jacob Windfall, CFA, is a portfolio manager for Fastrack Advisors, Inc. Fastrack has recently introduced a bonus system that rewards portfolio managers if their client portfolios outperform the benchmark each quarter. In order to enhance the short-term performance of his client portfolios, Windfall is considering purchasing a significant amount of stock in smaller companies with high betas for these portfolios even though he has not recommended any changes in investment strategy for his client portfolios this year.

Are there potential ethical considerations for Windfall's investment actions?

Answer:

Windfall faces a potential conflict of interest if the stock purchases are inconsistent with the IPSs of his clients and, therefore, are unsuitable for their portfolios. He should analyze his intended course of action objectively and disclose this potential conflict of interest to his clients.

Compliance Considerations

Regulatory requirements for private wealth managers vary by jurisdictions. For example, the *Markets in Financial Instruments Directive (MiFID II)* requires investment advisors to demonstrate the suitability of investment advice and meet threshold competence levels.

For the Exam: You are not required to be a compliance expert, but be prepared to state that private wealth managers must fulfill regulatory requirements as part of their responsibilities to clients if an exam question asks you to identify compliance considerations.

LOS 21.p: Discuss how levels of service and range of solutions are related to different private clients.

CFA® Program Curriculum, Volume 4, page 249

Private wealth management firms tailor their levels of service and range of solutions to the different private client segments that they serve. Typical categories of private clients include the mass affluent, high net worth, and ultra-high net worth segments.

Mass Affluent Segment

The mass affluent segment requires a *wide range of wealth management services*, such as portfolio construction, risk management, and retirement planning. It is characterized by a *larger number of clients per wealth manager* and *greater use of technology* in delivering services such as account creation and portfolio reporting. Due to the larger client-to-wealth-manager ratio, wealth managers do not tend to tailor their portfolio management approach for each client. Compensation for wealth managers in this segment can be based on *commissions* from investment transactions for the client (brokerage model) or *fees* linked to assets under management.

High-Net-Worth (HNW) Segment

The HNW segment exhibits a *smaller number of clients per wealth manager* compared to the mass affluent segment. Wealth management services provided in this segment are more likely to concentrate on *tailored investment solutions, tax planning, and estate planning*. The portfolios of HNW clients are more likely to contain *sophisticated* strategies (e.g., derivatives-based) and *alternative investments*. Estate planning considerations may also result in *longer investment horizons* and *greater risk capacity*.

Ultra-High-Net-Worth (UHNW) Segment

This segment is likely to have *multigenerational investment horizons, complex tax and estate planning*, and a *more comprehensive range of service requirements*, including ancillary services (e.g., travel planning) and advice on luxury investments (e.g., art and automobiles). The UHNW segment has a relatively *low client-to-manager ratio* because of the need to provide a *highly customized service* to clients.

A UHNW wealth manager typically manages the portfolios of multigenerational family members, requiring consideration of *family governance and inheritance issues*. UHNW clients are more likely to be serviced by a *client relationship team* that includes legal, tax, and investment experts in addition to a relationship manager. Some UHNW individuals may also choose to employ a *family office* of financial experts to manage their assets.

Robo-Advisors

Robo-advisors are *automated* wealth management advisors that assist private clients with their portfolio management needs. Robo-advisors gather client information using *online questionnaires* and recommend an appropriate asset allocation for the client's portfolio using mean-variance optimization or alternative techniques. The client's portfolio is constructed using *exchange-traded funds* or *mutual funds* and monitored on an ongoing basis. Periodic rebalancing and online performance reporting are also provided to the client.

Because of the automated client interface, the *costs associated with using robo-advisors are lower* than the fees charged by traditional private wealth managers. The *scalable* technology associated with robo-advisors also enables their services to be provided to clients with small portfolios in a cost-effective manner.

Robo-advisors are increasingly being employed by private clients for *more sophisticated* purposes (e.g., to fulfill unique investment preferences and for tax-efficient investing). They can also be used in combination with traditional private wealth managers to lower fees and to reach new private client segments.

EXAMPLE: Private client segments

List *three* key differences between the mass affluent and HNW private client segments.

Answer:

Three key differences between the mass affluent and HNW segments are as follows:

- The mass affluent segment has a larger client-to-manager ratio than the HNW segment.
- The portfolios of HNW clients are more likely to contain sophisticated investment strategies and alternative investments.
- Wealth managers are more likely to develop customized investment solutions for HNW clients rather than for clients in the mass affluent segment.

MODULE QUIZ 21.9



To best evaluate your performance, enter your quiz answers online.

1. Shane Long, CFA, works as a wealth manager for the London branch of a prestigious Swiss private bank. Long is meeting a prospective client, Anna Bradescu, for the first time. In a telephone conversation with Bradescu two days ago, she mentioned that she owns penthouse apartments in Paris, New York, Hong Kong, and Tokyo. At the meeting, she provides Long with her personal calling card that includes an address in one of the most exclusive residential areas of London. Long politely asks Bradescu for her passport and bank account details and enquires about her family circumstances and sources of wealth. The ethical consideration that Long is *most likely* concerned about is:
 - A. KYC.
 - B. confidentiality.
 - C. conflicts of interest.
2. Shane Long, CFA, has just concluded his first meeting with a prospective client, Anna Bradescu. Based on the information that Bradescu has provided, Long believes that Bradescu should be classified as an ultra-high net worth (UHNW) client. Which of the following is *most likely* a characteristic of the UHNW segment?
 - A. High client-to-manager ratio.
 - B. Complex tax and estate planning considerations.
 - C. Greater use of technology in providing wealth management services.
3. The growth of robo-advisors in the wealth management industry is *most likely* driven by:
 - A. cost considerations.
 - B. the superior ability of robo-advisors to develop sophisticated investment strategies.
 - C. the desire to have primarily human interaction for wealth advice coupled with automated portfolio construction, rebalancing, and reporting services.

KEY CONCEPTS

LOS 21.a

Investment Objectives

Private clients have a wide range of investment objectives that (1) may not be precisely defined, (2) can change over time, and (3) may be difficult to reconcile.

Institutional clients have more stable, clearly defined objectives.

Constraints

- Private clients have shorter time horizons compared to institutional clients. Private clients may also have different time horizons for different objectives compared to a single time horizon for institutional clients.
- Private client portfolios tend to be smaller than those of institutional clients, meaning that some types of alternative investments may be unsuitable for private client portfolios.
- Tax planning is an important consideration for private clients.

Other Considerations

Institutional clients tend to have a more formal governance structure and higher investment sophistication compared to private clients.

The regulatory environment and investor uniqueness and complexity are additional considerations for private clients.

LOS 21.b

Personal information that should be gathered for a private client includes family circumstances, employment, retirement plans, sources of wealth, investment objectives, risk tolerance, investment preferences, wills and trust documents, insurance policies, service guidelines, and portfolio reporting requirements.

Financial information gathering should include the client's personal balance sheet, annual income and expenses, and sources of cash flows.

LOS 21.c

Taxes on individuals include income tax, wealth-based taxes, and consumption tax.

Tax-efficient strategies include legal tax avoidance, tax reduction, and tax deferral.

LOS 21.d

Planned goals are those that can be reasonably estimated within a specified time horizon.

Unplanned goals are related to unexpected financial expenditures.

Private wealth managers can assist their clients in quantifying, prioritizing, and reevaluating or changing goals.

LOS 21.e

Risk tolerance is dependent on both the willingness and ability to take risk.

Risk capacity is based on the ability to take financial risks and is a more objective measure of risk compared to risk tolerance.

Risk perception is a subjective measure of risk and is affected by the way risk questions are framed.

LOS 21.f

Technical skills include proficiency in financial planning; capital markets and asset classes; portfolio construction and monitoring; technology skills; and in some instances, multiple languages.

Soft skills include communication and social skills; education skills; and business development and sales skills.

LOS 21.g

Capital sufficiency analysis is used to determine the likelihood of clients being able to meet their objectives.

Deterministic forecasting assumes that a private client's portfolio will achieve a single compound annual growth rate across the investment horizon.

Monte Carlo simulation allows for real world uncertainty and determines the probability of success for a client's objective.

LOS 21.h

Saving for retirement usually begins at the early career stage and continues through the preretirement stage. Private clients depend on cash flows from pension income and their investment portfolio to fund their retirement. A key challenge in retirement planning is

determining a sustainable rate at which distributions can be made from a client's portfolio for the rest of the client's lifetime.

A client's retirement goals can be analyzed using mortality tables, annuities, and Monte Carlo simulation. A life annuity can be used to reduce longevity risk. Monte Carlo simulation provides the probability of success for a client's retirement goals but does not consider shortfall magnitude.

Behavioral biases exhibited by retirees include increased loss aversion, consumption gaps, the annuity puzzle, and lack of self-control (preference for spending income over capital appreciation).

LOS 21.i, 21.j, 21.k

Client Background and Investment Objectives

A client's background details are obtained from relevant personal, financial, and tax information.

Investment objectives may be planned, unplanned, ongoing, or a one-off. Multiple objectives should be prioritized into primary and secondary objectives.

Key Investment Parameters

Low risk tolerance is usually associated with high-priority goals and near-term goals.

Time horizon is described as a range (e.g., in excess of 15 years for a long horizon and less than 10 years for a short horizon). When a client has multiple objectives, there may be different time horizons for each objective.

Other investment parameters include asset class preferences, liquidity preferences (including a cash reserve), unique investment preferences, and constraints restricting investments for a client's portfolio.

Asset Allocation

Strategic asset allocation indicates a long-term target allocation for each asset class, with the portfolio being rebalanced periodically to maintain the target allocation.

Tactical asset allocation is an active management strategy that normally specifies a range for each asset class rather than a specific target allocation percentage.

Portfolio Management and Implementation

This covers wealth manager guidelines in relation to discretionary authority, portfolio rebalancing, tactical asset allocation changes, and acceptable investment vehicles that can be used to implement a client's investment strategy.

Wealth Manager Duties and Responsibilities

These include formulating and reviewing the client's IPS; constructing the portfolio; monitoring and rebalancing the portfolio; monitoring portfolio costs and third-party providers; and reporting portfolio performance.

IPS Appendix

This section includes modeled portfolio performance and capital market expectations.

LOS 21.1

The traditional approach to portfolio construction consists of identifying appropriate asset classes, developing capital market expectations, determining asset class weights, assessing constraints, implementing the portfolio, and choosing asset location.

Goals-based investing follows the same steps as the traditional approach but creates separate portfolios for each of the client's goals. This makes it easier for the client to specify risk tolerance as this is done for each specific goal.

LOS 21.m

Portfolio reports should include a performance summary for the current period; market commentary for the current period; portfolio asset allocation; detailed performance of asset classes and individual securities; benchmark report; historical performance of the client's investment portfolio; transaction details for the current period; purchase and sale report for the current period; and the impact of currency exposure and exchange rate fluctuations.

Portfolio reviews should cover the appropriateness of the client's existing goals and investment parameters; rebalancing of portfolio asset allocation to target allocation or ranges; any changes to the wealth manager's ongoing management of the portfolio; any changes or updates in the wealth manager's duties and responsibilities; and any changes to IPS and portfolio review frequency.

LOS 21.n

The success of an investment program should be evaluated in terms of goal achievement, process consistency, and portfolio performance. The investment program is successful only if it achieves success on all three criteria.

LOS 21.o

Ethical considerations include fiduciary duty and suitability, know your customer requirements, client confidentiality, and conflicts of interest.

Compliance considerations for private wealth managers vary by jurisdiction.

LOS 21.p

The mass affluent private client segment is characterized by a wide range of management services, larger client-to-wealth-manager ratio, and noncustomized portfolio management approach.

The HNW segment exhibits a smaller client-to-wealth-manager ratio, tailored investment solutions, and portfolios with sophisticated strategies and alternative investments.

The UHNW segment often has multigenerational investment horizons, complex tax and estate planning, and comprehensive service requirements that go beyond investment planning.

Robo-advisors are automated wealth management advisors that offer portfolio management services at a lower cost compared to traditional wealth managers. The scalable technology of robo-advisors allows them to service clients with small portfolios.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 21.1

1. **B** Private clients are likely to have a wide range of investment objectives that may not be precisely defined, whereas institutional clients are more likely to have clearly defined objectives. Private clients are likely to have a less formal governance structure and a lower degree of investment sophistication compared to institutional clients. (LOS 21.a)
2. **A** Bonds typically provide a regular income, meeting the private client's liquidity needs. Hedge funds and private equity often have a lock-up period, making these investments unsuitable for a private client with a short investment horizon and/or high liquidity needs. (LOS 21.a)

Module Quiz 21.2

1. McPherson has already established Gove's age, current employment, risk preference, interest in meeting several financial objectives, and low liquidity needs.

McPherson should gather the following additional personal information about Gove's personal and investment background in order to prepare Gove's IPS (any five points from the following list would be acceptable):

 - Family circumstances, including marital status, and number and age of family members.
 - Proof of client identification (e.g., passport).
 - Future career aspirations.
 - Retirement plans.
 - Sources of wealth.
 - Specific return or investment objectives.
 - Unique investment preferences.
 - Further discussion of risk tolerance. (LOS 21.b)
2. Statement 1 is a tax avoidance strategy as the coupons and/or capital gains will not be taxed in the retirement account.

Statement 2 is a tax reduction strategy because the new asset class recommended by the private wealth manager would attract lower taxes.

Statement 3 is a tax deferral strategy. Since earnings accumulate tax free, taxes are deferred until withdrawals are made. (LOS 21.c)
3. **C** Portfolio rebalancing and updating capital market expectations demonstrate Cheong's technical skills. Cheong displayed interpersonal and language skills when explaining her client's portfolio performance. (LOS 21.f)

Module Quiz 21.3

1. In relation to goal quantification, Collins has quantified her retirement spending requirements. Her financial advisor needs to assist her in quantifying her daughter's college education expenses and the amount she would like to gift to her future grandchildren.

In relation to goal prioritization, even though Collins has stated that her highest priority goal is meeting her daughter's college expenses, the proximity of that goal should not be the sole factor determining its priority. Collins's financial advisor needs to assist her in prioritizing her financial goals and, if necessary, reevaluating her goals if the financial support of her daughter's college education and/or the

desire to leave a gift to her grandchildren adversely impact her ability to fund her retirement lifestyle. (LOS 21.d)

2. Collins has a *higher* risk tolerance associated with her retirement goal. This is because she views retirement as a long-term goal and is willing to accept a 10%–15% drop in expected retirement spending. Since she expects to retire in 20 years, Collins is also likely to have a higher risk tolerance for the funding of unexpected health-related expenses.

Collins is likely to have *lower* risk tolerance associated with her college fees goal. This is a near-term and her highest priority goal.

Collins is likely to have *higher* risk tolerance associated with the goal of leaving a gift to her grandchildren at her death due to the long-term nature of this goal. (LOS 21.e)

Module Quiz 21.4

1. **C** The simulation results show that the client has a 75% probability of having a portfolio value in excess of \$2,116,646 in Year 25. Since the client's charitable donation is \$2 million, the probability of success of meeting or exceeding that goal is slightly higher than 75%. (LOS 21.g)

Module Quiz 21.5

1. **C** The probabilities from mortality tables are used to weight the expected annual cash flows of a retiree in order to estimate the present value of the retiree's retirement spending needs. (LOS 21.h)
2. **B** A possible explanation for retirees preferring to spend investment income rather than liquidate securities is that retirees consider this a self-control mechanism. (LOS 21.h)

Module Quiz 21.6

1. **B** The purchase of a holiday apartment is a financial goal and should be included in the *Investment Objectives* section of the IPS. Risk tolerance and asset class preferences are considered under *Investment Parameters*. (LOS 21.j)
2. **A** ESG investing may require restrictions on investment in certain sectors or securities. These restrictions should be included as *Constraints* in the *Investment Parameters* section of an IPS. Time horizon and liquidity preferences are included as *Investment Parameters* in an IPS. (LOS 21.i)
3. **C** Rebalancing methodology, discretionary authority, tactical asset allocation changes, and implementation are covered in the *Portfolio Management* section of a client's IPS. Modeled portfolio behavior and capital market expectations are covered in the *IPS Appendix*. (LOS 21.i)
4. **A** A cash reserve and/or constraint on asset class selection because of liquidity needs is covered in the *Liquidity Preferences* section of an IPS. *Other Investment Preferences* might include a concentrated asset position. The *Portfolio Asset Allocation* section describes the asset allocation approach used for the client's portfolio (e.g., strategic or tactical asset allocation). (LOS 21.i)

5. **C** As each of Collins's financial goals has a different time horizon, Collins will have multiple time horizons. Time horizons should generally be expressed as a range because of the uncertainty associated with each goal (e.g., it is not possible to predict exactly how long Collins's retirement will last). (LOS 21.k)

Module Quiz 21.7

1. **B** Patel should recommend Alternative 2 as it correctly incorporates his client's preference for non-U.S. equities and alternative investments (as represented by commodities in this question) while staying within the portfolio volatility limit of 9%. Alternative 1 does not incorporate his client's preference for non-U.S. equities, while the portfolio volatility of Alternative 3 exceeds 9%. (LOS 21.l)

Module Quiz 21.8

1. Bond could provide the following additional items to improve the quality of his portfolio reports (any four points from the following list would be acceptable):
- Market commentary for the current period to provide context for the portfolio's performance.
 - Historical performance of the client's portfolio since inception.
 - Transaction details for the current period showing contributions, withdrawals, interest, dividends, and capital appreciation.
 - Purchase and sale report for the current period.
 - Impact of currency exposure and exchange rate fluctuations.
 - Progress toward meeting goal portfolios when using a goals-based investing approach. (LOS 21.m)
2. **A** Tan's investment program has met the goal achievement criteria (her portfolio has matched the modeled return in Bond's capital sufficiency analysis and no meaningful changes are required to her investment strategy) and the process consistency criteria (guidelines were followed in relation to ongoing communications, rebalancing, etc.). However, the portfolio performance criteria has not been met because her portfolio has underperformed the benchmark's return over the period. A successful investment program is one that achieves success on *all* three criteria. (LOS 21.n)

Module Quiz 21.9

1. **A** Given that Bradescu appears to be very wealthy, Long will most likely want to satisfy KYC requirements (e.g., to fulfill anti-money laundering checks). (LOS 21.o)
2. **B** Characteristics of the UHNW segment include the provision of highly customized services (low client-to-manager ratio), including complex tax and estate planning. Greater use of technology in providing wealth management services is a characteristic of the mass affluent segment. (LOS 21.p)
3. **A** Robo-advisors offer a cost advantage in the provision of wealth management services compared to traditional wealth management firms. Robo-advisors offer a primarily digital interface and typically implement investment strategies using mutual funds and ETFs. (LOS 21.p)

The following is a review of the Private Wealth Management (1) principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #22.

READING 22: TOPICS IN PRIVATE WEALTH MANAGEMENT

Study Session 10

EXAM FOCUS

This lengthy reading covers a wide and integrated range of topics beginning with taxation and leading to more specialized topics such as estate planning and family governance. Both an understanding of the terminology and the ability to perform calculations are required in this reading. Exam questions may explain you to calculate the maximum after-tax value or how to structure investments in such a way to achieve maximum after-tax value. Additionally, you may see questions where facts are sufficient to indicate the optimal strategy but insufficient details are provided to perform a calculation. Always remember that specific tax laws and regulations will be provided to you on exam questions, and you are not required to memorize laws and regulations specific to a country.

MODULE 22.1: APPROACHES TO TAXATION



LOS 22.a: Compare taxation of income, wealth, and wealth transfers.

Video covering this content is available online.

CFA[®] Program Curriculum, Volume 4, page 272

Main Categories of Taxes

1. Income tax (earnings): Paid by individuals, corporations, and other legal entities on various types of income including wages, rents, interest, and dividends.
2. Capital gains tax (earnings): Calculated on the price appreciation (e.g., proceeds minus cost) upon disposition of an asset. Tax rates of capital gains often differ from income.
3. Wealth/property tax (ownership): Paid annually on the value of assets held (frequently real estate). Has lower rates than income or capital gains taxes because wealth/property tax is assessed on the asset value.
4. Stamp duties (purchases): Tax on purchase price of real estate or financial assets.
5. Wealth transfer tax: Examples include inheritance, estate, or gift taxes. May be imposed on the transferee or the transferor.

Investment Income

Fixed-income instruments generate interest income, which is taxed at regular income tax rates in most jurisdictions.

Double taxation occurs when earnings are taxed first in the corporation, followed by some or all of the after-tax corporate earnings being paid out to investors as dividends,

which are then taxed as well. As a result of the double taxation, many jurisdictions have provisions to reduce the level of taxation of the dividends (second level). **Qualified dividends** are an example of dividends taxed at a lower rate. Qualified dividends are dividends from shares in local and certain foreign corporations where the investor has owned the shares for a certain amount of time (e.g., 60 days) on an unhedged basis.

When investing internationally, **withholding taxes** by the country where the investment occurs must be considered. Withholding taxes usually apply to investment income and are based on the gross (and not net) income. In many cases, the withholding taxes may be applied against the tax otherwise assessed by the investor's home country.

Capital Gains

The general equation is as follows:

$$\text{net sales price} - \text{tax (cost) basis} = \text{capital gain/loss}$$

The net sales price is the price after deduction of commissions and trading costs. Often, the tax basis is simply the original cost of the asset. In some jurisdictions, there could be a "step-up" in basis to fair market value on the date of death with no capital gains taxes owing. In other jurisdictions, the step-up occurs upon death or departure in residency, but any unrealized gains would be taxed.

Realized capital gains occur upon the actual disposition of an asset. Unrealized capital gains are "paper gains," which represent appreciation on unsold items. In situations where there is a realized capital loss, most jurisdictions allow the realized capital loss to reduce any realized capital gains.

Depending on the holding period of the investments, the capital gains may be subject to a short-term (usually higher) rate or a long-term (usually lower) rate. The rationale behind the rate differentials is to encourage long-term investment and discourage short-term speculation. If countries have low long-term capital gains tax rates, this means that stocks are more tax-efficient investments than bonds, the latter of which are taxed at regular rates.

Some countries also differentiate between investment gains (lower or no tax on capital gains) and trading gains (taxed at regular rates).

Real Estate Tax

When considering real estate as an investment (and not as a principal residence), only the net income is taxable in most cases. This means items such as interest, depreciation, and repairs are deductible against the gross income of the property. In the case of depreciation (e.g., straight line or declining over a specified number of years), the annual expense would reduce the cost base. Upon the ultimate sale of the property, there may be a recapture of depreciation if the proceeds of the sale exceed the property's depreciated cost base. Finally, some jurisdictions allow for an exchange of "qualifying" properties that essentially delays the incurrence of capital gains to the time when the new property is disposed of.

Types of Investment Accounts

A **taxable account** (e.g., individual brokerage account) is taxed at the relevant rates for each type of investment income.

A **tax-deferred account** (e.g., individual retirement account) allows for pretax contributions and tax-free accumulation, but all amounts are taxed at withdrawal as regular income.

A **tax-exempt account** (e.g., Roth IRA in the United States) allows for after-tax contributions to accumulate on a tax-free basis and with no taxes upon withdrawal.

From an institutional investor perspective, foundations/endowments, sovereign wealth funds, and pension funds are usually tax exempt. In contrast, insurance companies are usually taxable.

LOS 22.b: Describe global considerations of jurisdiction that are relevant to taxation.

CFA® Program Curriculum, Volume 4, page 276

Types of Tax Systems

A **tax haven** is a jurisdiction with very low or no tax rates for residents and foreign investors (e.g., Bermuda).

A **territorial tax system** taxes only income that is earned locally (e.g., Hong Kong SAR).

A **worldwide tax system** will impose taxes on all sources of income, which inevitably leads to double taxation on the same income by more than one jurisdiction. However, relief may be provided in the form of tax credits by the home jurisdiction for tax already paid in the source jurisdiction or bilateral tax treaties. Often, taxes are imposed on only residents of the jurisdiction, so it is crucial to determine the jurisdiction in which one is a resident. It is usually based on the amount of time spent in the jurisdiction (e.g., considered resident if living there for 183 of 365 days of the year). Tie-breaker rules exist so that individuals are not in the onerous position of being a resident in two jurisdictions simultaneously.

Only a handful of countries (e.g., United States) impose a tax based on citizenship. For example, a U.S. citizen living and earning income in Singapore would be subject to income taxes in both Singapore and the United States. In that case, an equitable resolution would require some double taxation relief.

EXAMPLE: Cross border investing issues

Cecile is a citizen of the Philippines and lives in the Philippines. She is thinking of investing in property in the United States. Outline the various implications to Cecile of the various options based on U.S. taxation.

Option 1: Owning property directly in nonresident individual name

- Disadvantage: Withholding tax may apply to gross, not net, rental income.
- Disadvantage: U.S. estate tax must be paid upon death.

Option 2: Owning property indirectly via U.S. corporation (U.S. corporation is owned by Cecile or a non-U.S. corporation)

- Advantage: Withholding tax may apply to net rental income.
- Advantage: Upon death, U.S. corporation shares go directly to Cecile's beneficiaries.
- Disadvantage: Upon death, if U.S. corporation is liquidated, any capital gains are subject to higher corporate taxes than individual taxes.

Option 3: Owning property indirectly via non-U.S. corporation

- Advantage: Income is generally not subject to U.S. taxation.

- Advantage: Upon death, not subject to U.S. estate tax. Shares go directly to Cecile's beneficiaries.

EXAMPLE: Examining taxes under territorial vs. worldwide investment portfolios

Home country investment portfolios

- With both tax regimes, investment portfolios in the home country are subject to taxes in the home country.
- Check relative tax rates on capital gains, dividends, and interest and reallocate more (less) investments to those types with lower (higher) tax rates.

Foreign country investment portfolios

- If there is no tax treaty, withholding taxes on gross income may be required.
- If there is a tax treaty, there may be a reduction in withholding tax rates for one or more types of investment income (e.g., interest and dividends).
- Whether there is a treaty or not, to maximize after-tax return, check for any advantageous provisions in the foreign country where:
 - Investment income (e.g., capital gains) on investments held by foreign investors is not taxed in the foreign country, and
 - Investment income (e.g., interest, dividends) is not subject to withholding taxes.

Wealth and estate taxes

- Check for any estate taxes and what items are included/excluded as that may impact investment allocations and/or investment holding structure (e.g., establish a non-U.S. company to hold U.S. investments to avoid U.S. estate tax).
- Check for any estate tax treaties that may allow for an estate tax exemption in the foreign country. However, in some instances, obtaining the exemption may require disclosure of full net worth to the foreign country tax authorities.

EXAMPLE: The Common Reporting Standard and Foreign Account Tax Compliance Act

To avoid tax leakage arising from tax evasion, automated tax information exchange between countries is becoming much more widespread. The focus is on banks, investment managers, and wealthy families with international investments.

The Common Reporting Standard (CRS) was facilitated by the OECD and involves information exchange between more than 100 jurisdictions. The CRS is also referred to as the Standard for Automatic Exchange of Financial Account Information.

The Foreign Account Tax Compliance Act (FATCA) originated in the United States as a means for U.S. taxpayers to pay tax on investment income earned outside of the country. The FATCA applies to all financial institutions who have U.S. investors.

LOS 22.c: Discuss and analyze the tax efficiency of investments.

CFA® Program Curriculum, Volume 4, page 283

Tax Efficiency

A **tax-efficient strategy** results in relatively high after-tax returns compared to pretax returns. Frequently, equities have greater tax efficiency versus fixed income and real estate, for example. Common reasons include (1) lower tax rates on dividends and capital gains in many countries and (2) the ability to time securities dispositions to maximize tax benefits.

Often, alternative assets are selected because of low correlations to traditional assets such as stocks and bonds. However, the tax laws pertaining to alternative assets (e.g., hedge fund strategies, partnerships) are usually far more complex than for traditional

assets. As a result, the impact of alternative assets on portfolio risk and return should always be viewed from an after-tax and after-fee perspective.

Investments that emphasize high-yield (interest income) and/or high turnover are often tax inefficient. At the same time, timing must also be considered, and in that regard, a momentum strategy with higher turnover might initially be viewed as tax inefficient. However, momentum strategies are quite tax efficient in that they hold winners longer (thereby deferring tax on gains) and sell losers sooner (thereby realizing losses earlier to offset against any gains). As a general note, investment constraints that require managers to sell securities (and realize gains) and rebalance portfolios more frequently result in less tax efficiency (e.g., in some jurisdictions, short-term capital gains are taxed higher than long-term capital gains).

There are four common metrics used in examining tax efficiency:

1. After-tax holding period return
 - Relevant taxes are computed and deducted when investments are disposed of
 - Accounts for interest income, dividend income, and realized gains/losses but not unrealized gains/losses
2. After-tax post-liquidation return
 - An extension of what was just listed but there is an assumption of overall portfolio disposition after a specific period (e.g., 5 or 10 years)
 - This measure accounts for unrealized gains/losses
3. After-tax excess returns
 - Either of the metrics just listed compared to a benchmark value
4. Tax-efficiency ratio
 - After-tax annualized total return versus pretax annualized total return

After-Tax Holding Period Return

$$R' = [(value_1 - value_0) + income - tax] / value_0$$

$$\text{Alternatively, } R' = R - (tax / value_0)$$

Tax is estimated based on interest and dividends received plus capital gains/losses realized, each multiplied by the relevant tax rate. Any capital losses are assumed to be offset by capital gains but the absence of any gains may result in a higher after-tax return compared to a pretax return.

EXAMPLE: Calculating monthly after-tax return

Assume the portfolio value is \$825,000 on April 1 and \$5,000 of interest is received on April 15. Assume that the tax rate on interest income is 25% and the monthly pretax overall portfolio return is 1.20%.

Approximate the portfolio after-tax return.

Answer:

$$1.20\% - [0.25(5,000)] / [825,000 + (5,000(30 - 15) / 30)] = 1.05\%$$

After-Tax Post-Liquidation Return

The post-liquidation return (R_{PL}) involves deducting the implied tax as shown here:

$$R_{PL} = [(1 + R'_1)(1 + R'_2) \dots (1 + R'_n) - (\text{liquidation tax} / \text{final value})]^{1/n} - 1$$

$$\text{liquidation tax} = (\text{final value} - \text{tax basis}) \times \text{tax rate on capital gains}$$

EXAMPLE: After-tax post-liquidation return

A portfolio has the following returns:

	Pretax	After-Tax
Year 1	5.3%	4.8%
Year 2	-3.3%	-2.7%
Year 3	6.9%	6.0%
Cumulative	8.85%	8.09%
Annualized	2.87%	2.63%

The portfolio has embedded gains equal to 5% of the ending value with capital gains taxes paid at a rate of 15%.

Compute the annualized post-liquidation return of the portfolio over three years.

Answer:

Portfolio value pretax (from above) = 1.0809

Tax liability from unrealized gains from liquidation = $15\% \times 5\% = 0.75\% = 0.0075$

Portfolio value net of tax = $1.0809 - 0.0075 = 1.0734$

Annualized post-liquidation return = $1.0734^{1/3} - 1 = 2.39\%$ (versus 2.87% if no taxes payable)

After-Tax Excess Return

The after-tax excess return (x') is computed as the after-tax return of the portfolio (R') minus the after-tax return of the benchmark (B').

$$x' = R' - B'$$

In the case of passive management, the benchmark could be an index. In the case of active management, it could be a specific portfolio that is consistent with the manager's investment style.

In this regard, the **tax alpha** would be defined as after-tax excess return (x') minus the pretax excess return (x).

$$\alpha_{\text{tax}} = x' - x$$

Tax-Efficiency Ratio (TER)

The TER is calculated as after-tax return (R') divided by pretax return (R).

$$\text{TER} = R' / R$$

For positive returns in taxable accounts, the higher the TER, the better. A higher TER means that relatively less return is lost to taxes. Obviously, the TER is not relevant for tax-exempt or tax-deferred accounts.

The TER does not work so well for negative returns, and in such instances, using an absolute comparison between after-tax and pretax returns or looking at tax alpha could be useful measurement alternatives.



MODULE QUIZ 22.1

To best evaluate your performance, enter your quiz answers online.

1. An investor is evaluating various assets and strategies for her portfolio. Based solely on tax effects, which type of investment would *most likely* be favored in a country with high tax rates on interest, dividend, and realized gains?
 - A. Growth stocks with moderate turnover.
 - B. Bonds with periodic payment of interest.
 - C. Value stocks held for a moderate period of time.
2. A portfolio generates a total return of 15%. The tax rates on interest, dividend, and capital gains are 35%, 20%, and 20%, respectively. The proportions of the portfolio return from interest, dividends, and realized capital gains are 10%, 25%, and 35%, respectively. Using the information provided, the net return after all taxes is *closest* to:
 - A. 11.25%.
 - B. 11.50%.
 - C. 12.68%.

MODULE 22.2: TAX LOCATION



LOS 22.d: Analyze the impact of taxes on capital accumulation and decumulation in taxable, tax-exempt, and tax-deferred accounts.

Video covering this content is available online.

CFA® Program Curriculum, Volume 4, page 292

So far, the coverage of tax has focused on financial planning decisions (e.g., after-tax growth assumptions for taxable accounts) and asset allocation (e.g., after-tax return and volatility). The focus in this section will be on asset location, retirement income planning, and charitable giving.

Taxable, Tax-Exempt, and Tax-Deferred Accounts

Many countries offer accounts that allow funds to be deposited and invested in a tax-advantaged manner. There are generally specified limits on how much can be invested in such accounts, and they are typically restricted to specified purposes such as retirement or health care. Two such accounts, tax-exempt and tax-deferred, will be discussed next.

Taxable accounts involve one or more tax rates on income (e.g., interest, dividends) or returns (e.g., realized capital gains) to determine R' . The taxes per period are paid and represent a cash outflow. The after-tax future value (R') of the portfolio is then determined as follows, where n is the number of years:

$$FV_{AT} = (1 + R')^n$$

With tax-exempt accounts (TEAs), after-tax funds are deposited so no tax is due on the returns earned or on withdrawals. In other words, the after-tax future value does not explicitly depend on the tax rate and is calculated as follows:

$$FV_{AT} = (1 + R)^n$$

With tax-deferred accounts (TDAs), pretax funds are deposited, and the investor may take a tax deduction for the amount contributed, thereby reducing taxable income and taxes due. All tax is deferred until withdrawal, allowing tax-deferred compounding. Because no tax was paid on the funds deposited, tax is due on the full amount of withdrawals. The tax

rate (t) will be the rate at the end of time n and the after-tax future value is calculated as follows:

$$FV_{AT} = (1 + R)^n(1 - t)$$

EXAMPLE: Comparing future after-tax amounts in different accounts

Assume that an investor lives in a country with a 35% flat tax rate on all investment income and returns. \$100,000 is invested in each of three accounts:

1. A taxable account earning 9%, subject to annual tax.
2. A tax-deferred account (TDA) earning 9%.
3. A tax-exempt account (TEA) earning 9%.

Compute the after-tax amounts for each account at the end of 30 years on the assumption of full liquidation.

Answer:

1. $FV_{AT} = (1 + R)^n = \$100,000 \times [(1 + 0.09)(1 - 0.35)]^{30} = \$550,460$.
2. $FV_{AT} = (1 + R)^n(1 - t) = \$100,000 \times [(1 + 0.09)^{30}(1 - 0.35)] = \$862,399$.
3. $FV_{AT} = (1 + R)^n = \$100,000 \times (1 + 0.09)^{30} = \$1,326,768$.



PROFESSOR'S NOTE

Superficially, it appears the TEA is superior to the TDA because there is no tax due on withdrawals. However, this ignores that TEA contributions are made with after-tax funds and TDA contributions are made with pretax funds. Suppose an investor has \$100 pretax available for savings and is in the \$30 tax bracket. The full \$100 can be contributed to a TDA and invested. If that contribution is not made, the investor will owe \$30 in taxes now and have only \$70 for contribution to the TEA.

Asset Location

The concept of asset location refers to whether to place assets in taxable, tax-exempt, or tax-deferred accounts. In general, tax-efficient assets (e.g., equities that generate capital gains, which are often subject to lower tax rates) should be placed in taxable accounts and tax-inefficient assets (e.g., taxable bonds that generate taxable interest, which is often subject to higher tax rates) should be placed in tax-exempt or tax-deferred accounts. However, exceptions may apply if equities held for the long term or subject to high turnover could avoid the negative and compounding effects of short-term taxes by being held in tax-exempt accounts and generating a comparatively higher after-tax return.

Taxable accounts have the advantage of allowing losses incurred to be offset against gains earned (similar to tax loss harvesting). As well, in determining whether equities should be included in taxable versus tax-deferred accounts, consider the capital gains tax rate for the former and the tax rate upon withdrawal for the latter. For example, an overly low capital gains tax rate or an overly high marginal income tax rate at retirement would favor equities inclusion in taxable accounts. A low marginal income tax rate would generally favor equities inclusion in tax-deferred accounts.

For equity strategies, there is often the trade-off between passive strategies (more tax efficient due to low turnover and fewer transaction costs) versus active strategies (less tax efficient due to high turnover and more transaction costs) in that passive strategies

often have lower returns than active strategies. In other words, there is a choice between (1) more tax efficiency and lower return and (2) less tax efficiency and higher return.

EXAMPLE: Tax location

Assume there are four asset classes:

1. Equity
2. Tax-managed equity (lower tax rate)
3. Fixed income (higher tax rate)
4. Tax-exempt fixed income

Portfolio composition:

- Asset class: 50% equity and 50% fixed income
- Account type: 50% in taxable accounts and 50% in tax-exempt accounts

Three possible asset location allocations:

- Tax-indifferent
- Tax-aware
- Asset location-sensitive

The *tax-indifferent* allocation considers only asset class 1 (equity) 50% and class 3 (fixed income) 50% and does not take any tax minimization strategies (e.g., asset classes 2 and 4) into consideration. The result is the lowest after-tax portfolio return of the three possibilities.

The *tax-aware* allocation takes away from asset classes 1 and 3 and adds to asset classes 2 (tax-managed equity) and 4 (tax-exempt bonds) so that it is 25% in each. Here, tax minimization strategies are used to try to increase after-tax portfolio returns.

The *asset location-sensitive* allocation follows the general rule of placing tax-efficient assets (50% in asset class 2: tax-managed equity) in taxable accounts and tax-inefficient assets (50% in asset class 3: fixed income) in tax-exempt accounts to generate the highest after-tax portfolio return of the three possibilities. The allocation ignores asset classes 1 and 4, as compared to asset classes 2 and 3, they are not so tax efficient and not so tax inefficient, respectively.

Any asset location strategy must retain flexibility given that goals and time horizons may vary between account types and given that multiple goals may exist. Using the previous example with tax-managed equities in taxable accounts, should there be a need for liquidity, a large allocation to equities may not be desirable and a larger allocation to bonds may be preferable despite the tax inefficiency of bonds.

Decumulation Strategies

The natural progression is from capital accumulation during the working years to tax-efficient decumulation during the retirement years to cover a retiree's spending needs.

The advantageous tax impacts on returns for tax-exempt and tax-deferred accounts over taxable accounts means that withdrawals should occur from taxable accounts first until they are exhausted. This is certainly true for a flat tax at all levels of income. In contrast, for a progressive tax system where marginal tax rates increase with income, it would make sense to "use up" the lower tax brackets with withdrawals from tax-deferred accounts first. After that, the withdrawals could come from the taxable accounts.

Charitable Giving Strategies

Charitable gifting has several key potential advantages:

- For the giver, the capital gains upon transfer to a qualifying charity of appreciated assets is deemed to be nil in some countries; in such instances, it is best to gift low-basis assets from taxable accounts.

- For the giver, the fair market value of the gifted assets would qualify for a tax deduction/credit in some countries and that lowers personal taxes payable.
- For the giver, if the assets are shares from a concentrated asset position, then the gift will lower the risk associated with the concentrated position.
- For the receiver, because the charity is tax exempt, it will not pay tax on any investment income or gains related to the gifted assets.

LOS 22.e: Explain portfolio tax management strategies and their application.

CFA® Program Curriculum, Volume 4, page 300

In using strategies to reduce taxes, it is necessary to distinguish between tax avoidance and tax evasion, the latter of which is illegal and involves deception and/or fraud to conceal income sources that would otherwise be subject to tax. In contrast, tax avoidance allows investors to minimize taxes by utilizing investment accounts that are legally exempt from taxes on income and capital gains (e.g., individual savings accounts in the United Kingdom). Some jurisdictions also allow limited gift amounts to be transferred without incurring wealth-based taxes.

Tax Management Strategies

The strategies can be classified in the following section.

Investments held in a manner to minimize taxes

- Allocating more to tax-exempt accounts than taxable accounts
- Holding certain investments (e.g., equities) for sufficient time to be subject to lower capital gains tax rates

Deferring income recognition

- Limiting dispositions to allow investments to earn more from tax-free compounding
- For progressive tax structures, waiting for marginal tax rates to fall when income levels are lower (e.g., retirement)
- Tax loss harvesting—offsetting capital gains by deliberately selling investments that have embedded capital losses; this is an example where greater turnover may create a tax benefit

Investment Vehicles

Four common vehicles include partnerships, mutual funds, exchange-traded funds (ETFs), and separately managed accounts (SMAs).

Partnership

Hedge funds and private equity funds are often structured as partnerships. Here, the partnership has no tax liability and taxes are usually allocated to the partners in the form of capital gains distributions, the latter of which are often taxed at lower rates.

Mutual Fund

Investment income (e.g., dividends, interest) is allocated to the investors and tax is paid by the investors based on when the income was received. Capital gains tax arises if the

investor disposes of the fund shares based on the excess of proceeds and tax basis.

In some countries, investors must pay their proportion of taxes for realized capital gains that occur within the fund. The fund net asset value (NAV) is lowered by the amount of the capital gains distribution.

New mutual fund shareholders may become liable for unrealized capital of prior periods. Consider an example of a fund that is established with 10 investors and assets of \$20 million. Over time, with no trading nor change in investors, the assets have increased in value to \$24 million, so there is a \$4 million embedded gain. Therefore, each investor has a tax basis of \$2 million and a share investment worth \$2.4 million. Assuming one new investor comes in and invests \$2.4 million, the fund's total tax basis is \$22.4 million and the fund's NAV is \$26.4 million. The new investor has a $\frac{1}{11}$ ownership interest and the tax basis is \$2,036,364 (\$22.4 million / 11). If the fund were immediately liquidated, the new investor would have a capital gains distribution of \$336,636 (\$2,400,000 – \$2,035,364) upon which there would be a tax liability. Therefore, the new investor is liable for taxes for which the investor did not benefit in terms of capital appreciation.

Measures such as the **potential capital gain exposure (PCGE)**, calculated as net gains (losses) divided by total net assets, may provide some clues as to the extent of embedded capital gains or untaxed capital appreciation in the fund that may become future tax liabilities for the investors. A high (low) PCGE suggests a high (low) likelihood of future capital gain distributions.

ETF

The ETF creation and redemption process is tax efficient because it allows managers the choice to transfer shares with a low cost basis to intermediaries (e.g., banks and brokerage firms). That will leave the ETF issuer with only the higher cost basis shares, which reduces the embedded capital gains and increases investors' after-tax returns.

SMA

SMAs have the greatest potential for tax management because everything can be customized for only one investor. For example, losses within the SMA can always be offset against any of the investor's gains separate from the SMA. In contrast, losses within a mutual fund are restricted in use to gains within that fund only.

Tax Loss Harvesting

The concept of tax loss harvesting involves the sale of securities with embedded losses to offset gains, which will lower the tax liability for the current year. Some jurisdictions have no restrictions on tax loss harvesting transactions, while others require a legitimate business reason that is not tax related.

One consideration for tax loss harvesting is the timing of sales in relation to the tax year-end. If a sale is being considered near the tax year-end, make the sale:

- Before year-end if it is a loss in order to place the loss in the current tax year and offset gains this year. That will lower taxes payable this year but increase taxes payable in the following year.
- After year-end if it is a gain. That will defer the gain and tax until the following year.

Watch out for situations where *wash sale* (or *superficial loss*) rules exist whereby, for example, losses may be denied if the same security is purchased 30 days before or after its sale at a loss. Circumventing the wash sale rules would require holding cash, an ETF, or a placeholder security for 31 days, which may be inconsistent with the desired exposures. Also, the subsequent repurchase of the security after 31 days, likely at a lower cost, means that there will be higher future capital gains. This is an example of how tax loss harvesting is a form of tax deferral.

Many tax authorities allow a form of **tax lot accounting**. When an investor makes a partial sale and has acquired the stock on different dates, each at a different cost, the investor may select which tax lots applied to the sale (the *specified-lot method*). In that case, the tax lots that produce the lowest tax bill should be designated as sold. Consider an investor who bought 100 shares of stock on three different dates for \$10,000, \$12,000, and \$15,000. In this example, the investor just sold 100 shares.

Highest in, first out (HIFO) is generally optimal and the 100 shares with a cost basis of \$15,000 should be designated as sold. If the sales price is higher than \$15,000, that will minimize the gain and capital gains tax due now. If the sales price is less than \$15,000, that will maximize the realized loss and the immediate tax benefits.

In case future tax rates are expected to be *higher* than current tax rates, **first in, first out (FIFO)** may be better and the 100 shares with a cost basis of \$10,000 should be designated as sold. It will create a higher immediate tax bill (but at lower tax rates) and it defers the higher tax lots for sale in the future. This will lower the realized gain now or increase the realized loss at a future date. In other words, it will maximize the loss later, during a period of higher tax rates, resulting in greater tax benefits.

In case future tax rates are expected to be *lower* than current tax rates, **last in, first out (LIFO)** may be better and the 100 shares with a cost basis of \$15,000 should be designated as sold. It will maximize the loss in the current period (at a higher tax rate) and defer the gains to the future where they will be taxed at a lower rate.

Because equity markets tend to appreciate over time, using LIFO is generally the most tax-efficient strategy. Here, the highest tax basis shares are sold first, which results in the lowest tax liability in the current period and defers the higher tax liabilities to future periods.

In some jurisdictions, tax lot accounting doesn't exist and other alternatives, such as average cost, are used to determine the tax cost basis.

Quantitative Tax Management

Risk and return are the basic principles in portfolio evaluation. In that regard, tracking error is used as a measure of the risk of introducing tax management and quantitative methods are used to maximize tax efficiency.

The general idea behind quantitative tax management is to minimize tracking error and trading costs as well as to minimize realized gains and maximize realized losses. The goal is to manage all that while meeting any other portfolio constraints (e.g., sector, country).

For new clients who transfer in appreciated securities, there is a delicate balance between the tax cost (e.g., realized gains) of selling those securities versus potential underperformance of holding those securities for too long. Those appreciated securities may not be consistent with the new investment objective.

Tax-optimized loss harvesting refers to looking for opportunities during the year as opposed to doing so only once near the end of the year. The assets that are sold during the process must be replaced, and therefore, the process uses quantitative methods to determine appropriate replacement assets that would be consistent with the portfolio's investment objectives.

Gain-loss matching optimization can be used to achieve the goals of minimizing capital gains and ensuring risk exposures are in line with portfolio objectives. In other words, it is possible to have zero capital gains by not selling securities with embedded gains, but that may result in excessive concentration risk, for example.

Many tax authorities impose a higher capital gains tax rate on shorter-term versus longer-term holdings. While it is generally desirable to extend the holding period to defer the tax, it is particularly desirable to extend the holding period when it also lowers the tax rate. Additionally, when there are short-term losses to apply, they should be used to offset short-term gains first because the latter are usually taxed at a higher rate than long-term gains.



MODULE QUIZ 22.2

To best evaluate your performance, enter your quiz answers online.

1. An investment of \$1,000 earns an annual interest of 5% (no capital gains). Assuming annual taxation at a 30% rate, the expected after-tax value of the investment in 10 years is *closest* to:
 - A. \$1,035.
 - B. \$1,140.
 - C. \$1,411.
2. Assume \$100,000 is invested in a tax-deferred account. The expected after-tax balance that can be withdrawn from the account after 20 years, assuming a tax rate of 30% and a pretax return of 10%, is *closest* to:
 - A. \$386,968.
 - B. \$470,925.
 - C. \$672,750.
3. Assume \$100,000 is invested in a tax-exempt account. The expected after-tax balance that can be withdrawn from the account after 20 years, assuming a tax rate of 30% and a pretax return of 10%, is *closest* to:
 - A. \$386,968.
 - B. \$500,925.
 - C. \$672,750.
4. An investor has \$800,000 of equity securities in a tax-deferred account and \$600,000 in bonds in a tax-exempt account. Assuming a tax rate of 40%, the after-tax asset allocation is *closest* to:
 - A. 44.4% equity; 55.6% bonds.
 - B. 57.1% equity; 42.9% bonds.
 - C. 31.0% equity; 69.0% bonds.
5. Which of the following assets would be the *most appropriate* asset to locate in a tax-deferred account rather than a taxable account?
 - A. Tax-exempt bonds.
 - B. High-growth stocks.
 - C. Corporate bonds.
6. An investor has a realized capital gain of \$80,000 and is subject to a capital gains tax rate of 30%. The investor can sell another stock with a cost basis of \$140,000 and a current market value of \$90,000. The tax savings from harvesting the loss is *closest* to:
 - A. \$9,000.

- B. \$10,000.
C. \$15,000.
7. For the previous question, assume the investor may either:
- Strategy 1: Sell the stock now and recognize the loss in the current year.
Strategy 2: Hold the stock now and sell it at the end of the second year.
- In another case, the old or new stock is sold at the end of the second year after earning a 10% return for that year. Any current tax savings is immediately reinvested in a very similar stock (ignore any wash sale rules). Which of the strategies provides the highest future accumulation?
- A. Strategy 1.
B. Strategy 2.
C. The strategies provide the same future after-tax accumulation.

MODULE 22.3: CONCENTRATED POSITIONS



Video covering
this content is
available online.

Through work, inheritance, entrepreneurship, or for other reasons, individuals may come to hold concentrated positions in a single asset. Concentrated positions in a publicly traded single-stock position, a privately held business, or a real estate investment (not the primary residence) are covered in this module. A concentrated position may lead to inefficient asset allocation. An investment manager often works with the client to sell or otherwise monetize the asset. Such decisions often involve illiquidity, tax, legal, and emotional (behavioral finance) issues.

LOS 22.f: Discuss risk and tax objectives in managing concentrated single-asset positions.

CFA® Program Curriculum, Volume 4, page 308

A narrower definition of “concentrated position” will be used here, referring to the inability to create a diversified and efficient portfolio resulting from low tax basis (e.g., large capital gains tax liability to be avoided) or emotional attachment. Having a concentrated position in public equity could occur for several reasons, including an initial public offering or the accumulation of employee stock compensation over the years.

Concentrated single-asset positions also have company-specific risk, which is the nonsystematic risk of an investment that can be diversified away. It would be derived from adverse events that affect a specific company or industry but not the overall market.

Finally, concentrated positions could be subject to illiquidity and high transaction costs even if there is no tax due. A public company trading with insufficient volume may require a price discount to sell. The time and expense of finding a buyer for a private business can be substantial, so there cannot be any reliance on the proceeds to fund unexpected cash outflows.

In choosing a strategy to manage the concentrated position, the following factors should be considered:

- Level of concentration—the higher it is, the timelier the response needs to be to reduce the risk.
- Tax basis—the lower, the greater the taxes due.

- Tax rate—the higher, the greater the taxes due.
- Liquidity—the more illiquid, the greater the costs of risk reduction.
- Time horizon—more time may allow the concentration to be reduced gradually, which lowers the overall cost.
- Investor restrictions—may prevent an outright sale.
- Nonfinancial matters—emotional attachments may hinder the risk-reduction process.

Various strategies are available to manage concentrated positions, including:

- Sell the entire position—incur the tax liability and use the after-tax proceeds to invest in a more diversified manner.
- Sell the entire position gradually over time—same as what was just listed but reduces risk of doing so at a suboptimal time.
- Hedge and monetize—use derivatives to hedge (e.g., limit downside risk) and then borrow against its value and use the loan proceeds to accomplish client objectives.
- Tax-free exchange funds—one example involves investors combining their concentrated positions with other investors to create diversification but avoid triggering capital gains.
- Charitable gifts—assets can be transferred to private foundations and donor-advised funds where such assets can be sold and not incur any tax liabilities. Those funds could be used to achieve the donor's charitable objectives. The same can be done using charitable trusts that would also provide the donor with current income for living expenses.
- Tax minimization strategies—some tax laws allow a tax-free step-up in basis if one holds an asset to death, which is a legal form of tax avoidance. A gradual disposition of a concentrated position spreads the tax liability out over a period of time and is an example of a tax deferral strategy.

LOS 22.g: Describe strategies for managing concentrated positions in public equities.

CFA® Program Curriculum, Volume 4, page 310

Staged Diversification Strategy

Here, the disposition of the concentrated position is not done all at once but is done over multiple years to spread out the tax liability accordingly. But it means that the concentrated position is maintained for a longer time (although it is gradually being reduced). However, the after-tax funds could then be used to invest in a diversified asset (e.g., broad-based ETF).

Completion Portfolio

Here the other portfolio assets are structured for greatest diversification benefit to complement/complete the concentrated position. For example, if the concentrated position is an automobile stock, then the rest of the assets are selected to have a low correlation to automobile stocks such that the resulting total portfolio better tracks the return of the chosen benchmark. The selection of those assets (e.g., stocks, ETFs) is based on quantitative techniques.

On the tax side, quantitative techniques are used to determine how much rebalancing is required. There is both minimization of tracking error and maximization of after-tax return. Both objectives conflict because selling less shares at a time will reduce taxes but increase tracking error. In general terms, maximizing after-tax returns is achieved by realizing more capital losses and those capital losses are used to offset capital gains on the sale of the concentrated stock.

Equity Monetization, Collars, and Call Writing

Monetization generally involves receiving cash for a position without triggering a tax event. In other words, there is no disposition of the appreciated securities, and the investor still owns them. Monetization is a two-step process:

Step 1: Hedge a large part of the risk in the position. This can be achieved with a short sale, forward sale contract, forward conversion with options, or a total return equity swap. The underlying assumption here is a robust or liquid derivatives market.

Step 2: Borrow using the hedged position as collateral. The more effective the hedge, the higher the loan-to-value (LTV) ratio. For example, if a highly effective hedge can be established that limits the decline in value of a \$10 million position to 5% (a \$9.5 million ending value), it may now be possible to borrow \$9.5 million (95% of initial LTV). The client can then use the \$9.5 million to invest in a diversified portfolio.

Zero-cost collars are a common way to lower initial cost by giving up some stock upside. A put is purchased and a call is sold with different strike prices selected so the premiums are equal. For example, assuming a stock is currently trading at \$50 per share, an investor could buy a 48 put for a \$2.98 cash outflow and, as an offset, sell a 53 call for a \$2.98 cash inflow. The investor has a net expenditure of zero. The investor is protected if the stock price falls below \$48 but gives up some upside (between \$50 and \$53) because the stock will be called at only \$53 if its price rises to that level. Therefore, there is some risk reduction but not complete risk elimination. Also, for tax purposes, if the buy and sell premiums can be combined into one integrated transaction, it would be desirable, as it avoids any cash outflow associated with the taxation of the call premium income.

In terms of hedging, if a perfect hedge is used and removes all risk, it may be taxed as a sale (e.g., constructive sale). Therefore, the hedge must be structured to eliminate as much risk (and retain as little risk) as possible without the tax liability coming due. Using the information from the previous example, the investor would have to bear the risk of loss between \$50 and \$48. In that regard, the constructive sale rules are not likely to apply, and a taxable event could be avoided.

Covered call writing is a profitable strategy in stable markets if the stock price remains within a specific range, as the investor will simply keep the call option premiums received. An investor may hold a stock currently trading at \$50 per share and does not want to sell at any price below \$60. The strategy could be to sell call options with a strike price of \$60 so that if the share price does manage to reach \$60, the investor will receive \$60 per share upon exercise of the call options. Covered call writing could be viewed as a form of staged diversification but will only work if the share price appreciates sufficiently.

Tax-Free Exchanges

With an **exchange fund**, consider 10 investors, each of whom has a concentrated position in a single stock with a low cost basis. Each investor's position is in a different stock. The investor contributes a holding into a newly formed exchange fund and each investor now owns a pro rata share of the new fund. If investor H had a position worth EUR 5 million with a cost basis of EUR 0.5 million and the total value of the new fund is EUR 100 million, investor H now owns 5% of the new fund with a cost basis of EUR 0.5 million. Investor H now participates in a diversified portfolio and defers any tax event until shares of the fund are sold.

Charitable Remainder Trust

Here, the individual makes an irrevocable donation of the shares to a charitable remainder trust (CRT) and receives a tax deduction for the donation. From the donation (capital), the CRT as a tax-exempt entity could sell those shares for no tax consequences and reinvest the proceeds into a more diversified portfolio. From the portfolio, the CRT pays out income amounts to the designated beneficiaries and, upon the passing of the last beneficiary, the remainder of the capital goes to the designated charity.

LOS 22.h: Describe strategies for managing concentrated positions in privately owned businesses and real estate.

CFA® Program Curriculum, Volume 4, page 317

Privately Owned Businesses

Private companies are usually smaller, less established, and have fewer sources of financing compared to public companies. As a result, for a given amount, a concentrated position in a privately held business is significantly riskier than a publicly traded firm. The owner of the company usually has much of the personal wealth invested in the business, and the desire for liquidity must be balanced with dilution of ownership interest and possibly even loss of control.

Besides an initial public offering (IPO), direct sale to another investor (e.g., strategic buyer, financial buyer, management/key employees), or sale of non-essential business assets, three main strategies are considered here.

Personal Line of Credit Secured by Company Shares

The owner can borrow from the company and pledge company stock as collateral. If the company does not have the financial resources to make the loan, the company could borrow to obtain the cash for the loan to the owner. Interest paid by the company could be a tax-deductible business expense. Alternatively, the line of credit (loan to the owner) could be from a third-party lender. The company may offer the lender a put, allowing the lender to transfer the loan to the company for cash. That increases the lender's assurance of repayment in exchange for more favorable loan terms to the owner.

Leveraged Recapitalization

The owner may retain 20%–40% of the equity capital and sell 60%–80% of the shares back to the company. The owner continues to manage the business with a significant financial stake. A private equity firm (PEF) could arrange the financing for the company to purchase the owner's stock. In exchange, the PEF receives equity in the company. This can be part of a phased exit strategy; the owner will sell and receive cash for a portion of

equity in the initial transaction and then participate in and sell remaining shares when the PEF resells their position in a few years. Taxes are owed on the cash received in the initial recapitalization but additional taxes are deferred until the owner's remaining stock is sold. If tax rates are expected to increase in the future, the transaction can be structured with more cash in the initial transaction.

Employee Stock Ownership Plan (ESOP)

The owner sells stock to the ESOP, which in turn, sells the shares to company employees. In a leveraged ESOP, the company borrows money to finance the stock purchase. In the United States (subject to additional restrictions), the owner's sale of shares may not trigger a capital gains tax.

Real Estate

Property-specific risk for real estate is the direct counterpart to company-specific risk for a company. It is the additional, diversifiable risk associated with owning a specific property. It might arise, for example, from the discovery of environmental pollution on the site or the loss of a key tenant and rental income.

A single investment in a real estate asset can be large and constitute a significant portion of an investor's assets, bringing a high level of concentrated, property-specific risk. Real estate is generally illiquid and, if held for a long time, may have a significant unrealized capital gain. A seller considering the sale or monetization of a property should consider its current value relative to historical and expected value in the future, taxes on any transaction, availability of credit, and interest rate levels.

Two key strategies to consider include mortgage financing and a donor-advised fund or charitable trust.

Mortgage Financing

Normally, a sale of an income-producing property to an external party results in the immediate payment of capital gains taxes, loss of control, and no ability to benefit from future appreciation. Therefore, mortgage financing can be an attractive strategy to raise funds without suffering from any of those three negative effects.

With a nonrecourse loan, the lender's only recourse is to seize the property if the loan is not paid. The borrower effectively has a put option on the property. If the property value falls below the loan amount, the borrower could simply default on the loan, keep the loan proceeds, and "put" the property to the lender. A loan on income-producing property could have zero cash flow and zero tax effects on the borrower if the property's income covers the interest on the loan and other property expenses. The concentration risk is reduced because the loan proceeds could presumably be invested in liquid and diversified investments.

In effect, the borrower can still participate in future property appreciation but has a leveraged investment position. The borrower obtains a similar amount of funds that would have been received from an outright sale and still benefits from future appreciation.

Donor-Advised Fund (DAF) or Charitable Trust

A DAF can allow the property owner to take a tax deduction, gift more money to the charity, and influence the use of the donation. For example, an investor owns property worth \$5 million and would like to make a \$5 million contribution to a local hospital in exchange for having a new children's clinic named after his mother. The property was originally purchased for \$3 million, and the investor has deducted \$1.3 million of depreciation expense, making the current tax basis \$1.7 million. If sold for \$5 million, the investor would owe capital gains taxes on a \$2 million capital gain and recapture taxes on \$1.3 million (\$3 million – \$1.7 million). Instead, the investor could contribute the property to a DAF for the hospital and take a \$5 million tax deduction, and the tax-exempt hospital could sell or retain the property with no tax due. Therefore, the gains and depreciation recapture are never taxed.



MODULE QUIZ 22.3

To best evaluate your performance, enter your quiz answers online.

1. For which individual would reducing specific risk be *most appropriate*?
 - A. An owner who holds 100% of a private business and the position is 40% of his total assets.
 - B. An executive who owns shares of her employer's company and the position is 40% of her total assets.
 - C. A spouse who inherited a real estate investment and the position is 10% of the spouse's total assets.
2. Which of the following owners of a concentrated position would *most likely* wish to retain control of the position as part of a monetization strategy?
 - A. The owner of a rental apartment property.
 - B. The owner of a warehouse who leases the building to a private company he owns.
 - C. Young children who inherit a concentrated position in private stock of the company founded by their father.
3. The primary issue for a manager advising the holder of a concentrated position in a private company versus a public company is:
 - A. determining the investment's value.
 - B. determining the relevant tax rates to apply.
 - C. evaluating the impact of currency values.

MODULE 22.4: GIFT AND ESTATE PLANNING



LOS 22.i: Discuss objectives—tax and non-tax—in planning the transfer of wealth.

Video covering this content is available online.

CFA® Program Curriculum, Volume 4, page 321

Gift and Estate Planning

An individual's **estate** is everything that is owned by the individual, including financial assets, real estate (immovable property), collections (e.g., art, stamps, coins), businesses, and intangible assets (e.g., trademarks, copyrights, patents).

Estate planning is the planning process associated with transferring the estate to others during an individual's lifetime or at death so that the assets go to the intended individuals or entities in the most efficient way (e.g., tax minimization).

Key objectives in gift and estate planning include the following.

Ensuring Adequate Liquidity and Ongoing Income

Funds are required to ensure the donors and beneficiaries meet their lifestyle goals and to ensure potential estate taxes are covered.

Control Over Assets

It is possible for the individual to provide beneficial ownership of the assets to the beneficiaries but not provide them with control of the assets, which is the same with charities—the individual donor may maintain control over the assets donated and direct how the funds are to be spent.

Asset Protection

In some cases, trusts may shield assets from creditors as well as jurisdictions that provide statutory ownership that effectively gives one person the right to the assets of another. If the system has **forced heirship** rules, for example, children have a right to a portion of a parent's estate, regardless of the location of the child vis-à-vis the parent, the relationship that exists between the parent and child, or even the relationship between the parents.

EXAMPLE: Force heirship

Hope and Larry have been married for 40 years. They have two married children, Emma, age 32, and Toby, age 34. The forced heirship regime under which the family lives entitles a surviving spouse to 30% of the total estate, and the children are entitled to split 30% of the total estate. Assume Larry passes away with a total estate of €1,800,000.

Under the forced heirship rules, **determine** the amount Hope and each child will inherit. Will Larry be able to leave his sister €800,000?

Answer:

Under the forced heirship rules, Hope is entitled to 30% of the total estate or $(0.30)(€1,800,000) = €540,000$.

Under the forced heirship rules, the children are entitled to split 30% of the total estate or $(0.30)(€1,800,000) = €540,000$ in total, meaning there is €270,000 for each child.

In total, only $€540,000 + €540,000 = €1,080,000$ of the total €1,800,000 is distributed according to forced heirship rules. The remaining €720,000 may be left to Larry's sister. Therefore, it would not be possible to leave her €800,000.

Laws across the globe can vary dramatically. Many of the differences are due to the foundations upon which the legal systems are based. For example, a civil law system is based on old Roman law. In such a system, laws are handed down (i.e., a top-down system) by a legislative body. In contrast, a common law system, based primarily on old English law, is more "bottom up." Judges play very important roles in common law systems by refining any existing laws to meet particular situations. Once made by a judge, the decisions become precedent to be applied in future cases.

Tax-Effective Transfer of Assets

The two primary means of transferring assets are through gifts and bequests. Gifts transferred during one's lifetime may be subject to **gift tax**, and bequests (transfers after death) may be subject to estate taxes paid by the grantor/transferor or inheritance taxes paid by the recipient. In many countries, there are tax-free allowances applying to gifts and transfers that would allow for the reduction of gift, estate, and inheritance taxes. A

prudent financial plan would ensure all the available tax-free allowances are used as much as possible. Asset transfers before death are sometimes preferable, especially if the capital gains can be taxed at lower rates (e.g., beneficiaries).

In the absence of **generation-skipping transfer taxes (GSTT)**, transferring assets directly to a third generation (e.g., grandparent directly to grandchild, bypassing the parent) avoids possible double taxation. Therefore, some countries have a GSTT that is often subject to a lifetime GSTT exclusion amount, so only transfers above the exclusion amount would attract GSTT.

Maintain Family Wealth

A family governance system may reduce or eliminate family disputes regarding investment and philanthropic objectives. The governance process is long term in nature, as it is meant to apply to the current and future generations. Items included in governance include trusts, foundations, and life insurance.

Business Succession

Transferring control and ownership to the next generation of the family is done through gifts and bequests. Depending on family circumstances and interest, the existing owner must decide whether to pass on the business to the next generation and to whom or to simply sell the business to an external party.

Charity

Charitable donations may be tax effective when they fall under gift and/or estate tax exemptions. As well, charitable donations may allow for a current tax deduction to the donor. Finally, establishing a private foundation may allow a family to maintain a long-term or permanent legacy.

LOS 22.j: Discuss strategies for achieving estate, bequest, and lifetime gift objectives in common law and civil law regimes.

CFA® Program Curriculum, Volume 4, page 325

General Estate Planning

The most common tool used to transfer assets is a **will** (or a **testament**). A will is the legal document that states the rights that others will have to your assets at your death. The person transferring assets through a will is known as a **testator**.

Probate is a legal process that takes place at death, during which a court determines the validity of the decedent's will, inventories the decedent's property, resolves any claims against the decedent, and distributes remaining property according to the will. Probate involves considerable paperwork and court appearances, and all costs associated with the probate process, which can be significant, are borne by the decedent's estate. If the decedent leaves no will or the will is deemed invalid, the decedent is said to have died **intestate**, and the distribution of the assets will be determined by the court.

Forced heirship rules, as mentioned before, caused some to try to get around such rules in the past. For example, they may transfer assets to an offshore trust in a different jurisdiction or give away assets before death.

Trusts are a common estate planning tool whereby the settlor establishes the trust by contributing assets and a trustee is assigned to maintain the assets for the beneficiaries designated by the settlor. Testamentary trusts are established when the settlor dies and inter vivos trusts are established while the settlor is still alive. Although the assets are held “in trust,” legal ownership of the assets may be with the settlor or the trustee. In contrast, a foundation is able to hold assets in its own name.

Lifetime Gifts and Testamentary Bequests

As discussed previously, giving away assets before death is often a good estate planning technique and is known as a lifetime gratuitous transfer. Such gifts may or may not be subject to tax; for example, in some countries, transfers to spouses are tax free.

If assets are transferred upon death, the process is known as a **testamentary bequest** or a **testamentary gratuitous transfer** (or an inheritance from the perspective of the beneficiary). Estate or inheritance taxes may be due and set on a flat rate basis or **progressive tax rate schedule**, with increasing rates for greater wealth transferred. There is sometimes an allowance or threshold amount for which no transfer tax applies; it could be periodic (e.g., annual gift tax exclusion) and/or lifetime.

EXAMPLE: Inheritance tax (flat rate)

Ernestine, a widower, recently died. She was a resident in the country of Mosario at the time of her death and had a total estate valued at MOS 5 million. Her children are the beneficiaries of her estate. Mosario imposes an inheritance tax on estates worth over MOS 2 million at a flat rate of 25%. How much inheritance tax must be paid by the children?

Answer:

$(\text{MOS } 5 \text{ million} - \text{MOS } 2 \text{ million}) \times 25\% = \text{MOS } 0.75 \text{ million}$

EXAMPLE: Estate tax (progressive rates)

Martin, who was single, recently died. He was a resident in the country of Karene at the time of his death and had a taxable estate of KAR 1.8 million. Martin was eligible for KAR 0.4 of exemptions.

An excerpt from Karene's progressive estate tax rates is as follows:

Taxable estate (KAR)	Tax rate (%)
Up to 500,000	5
500,001 to 1,000,000	7
1,000,001 to 1,500,000	12
1,500,001 to 2,000,000	15

How much estate tax is payable upon Martin's death?

Answer:

The taxable estate is KAR 1.8 million – KAR 0.4 million = KAR 1.4 million.

Tax on first 500,000 (5%) KAR 25,000

Tax on next 500,000 (7%) KAR 35,000

Tax on remaining 400,000 (12%) KAR 48,000

Total estate tax is KAR 108,000.

A client with excess capital may gift the capital now or bequeath it at death. Doing so now and making use of the tax-free exemptions is generally considered prudent because, had the gift not been made during the lifetime, the appreciated amount would be subject

to future estate or inheritance tax. By gifting earlier, there are less amounts subject to future estate or inheritance tax. As well, assuming the giver's tax rate is higher than the receiver's tax rate, the resulting and periodic income generated by the gift (e.g., interest, dividends) would be subject to a lower tax rate.

Charitable Gratuitous Transfers

There are three benefits of charitable gifts (e.g., appreciated securities):

1. The donor usually does not have to pay gift tax.
2. The donor receives an immediate tax deduction for the gift, which reduces the donor's current year tax liability.
3. The charity is usually tax exempt so it can invest the funds and there would be tax-free compounding.

Efficiency of Lifetime Gifts vs. Testamentary Bequests

This approach calculates a ratio of a gift now versus bequest at death. A ratio above/below 1 indicates that from a tax perspective, it is favorable/unfavorable to gift now. The calculations are based on the FV after tax to the receiver. Any FV after-tax calculations require assumptions, and the conclusions are only as good as the assumptions.

The basic form of the ratio is as follows:

FV after tax to the receiver if gifted now / FV after tax to the receiver if bequeathed at death

$$RV_{\text{tax-free gift}} = FV_{\text{gift}} / FV_{\text{bequest}}$$

There are two tax scenarios to consider.

1. The gift now is tax free to both the receiver and the donor.
2. The gift is taxable with tax paid by the receiver.

The relevant tax factors to consider are:

- r_g and t_g are the pretax return earned and the applicable tax rate on those earnings for assets held by the gift receiver,
- r_e and t_e are the pretax return earned and the applicable tax rate on those earnings for assets held by the gift giver,
- T_e is the estate tax rate and would be paid from the estate, and
- T_g is the gift tax rate and is assumed to be paid by the receiver.

$$FV_{\text{gift}} = [1 + r_g(1 - t_g)]^n$$

$$FV_{\text{bequest}} = [1 + r_e(1 - t_e)]^n (1 - T_e)$$

The two potential RV ratios are as follows:

1. RV of a tax-free gift, $T_g = 0$

$$RV_{\text{tax-free gift}} = RV_{\text{tax-free gift}} = \frac{FV_{\text{gift}}}{FV_{\text{bequest}}} = \frac{[1 + r_g(1 - t_g)]^n}{[1 + r_e(1 - t_e)]^n (1 - T_e)}$$

2. RV of a taxable gift, T_g , paid by receiver

$$RV_{\text{taxable gift}} = RV_{\text{taxable gift}} = \frac{FV_{\text{gift}}}{FV_{\text{bequest}}} = \frac{\left[1 + r_g(1 - t_g)\right]^n (1 - T_g)}{\left[1 + r_e(1 - t_e)\right]^n (1 - T_e)}$$

RV of a tax-free gift, $T_g = 0$: The numerator projects FV after tax of the investment if held by the receiver. The denominator projects the FV after tax if held by the giver and then subject to estate taxes.

RV of a taxable gift, T_g , paid by the receiver: This is a variation on the tax-free gift formula with a subtraction in the numerator of $-T_g$ to reflect that the receiver of the gift must pay a tax and has less to invest. All else the same, it now makes gifting less attractive.

EXAMPLE: Gifting now vs. a bequest

Mary Jane is considering making a gift now or a bequest upon death. The assumptions are:

1. Life expectancy is an additional 20 years.
2. The pretax return and investment tax rate are 8% and 35%, respectively, for both Mary Jane and the receiver.
3. The gift tax rate and estate tax rate are 25% and 40%, respectively.

Scenario 1: Assuming the gift is not subject to gift taxes, **compute** the relative attractiveness of a gift or bequest and recommend the best approach.

Scenario 2: Assuming the gift is subject to gift taxes and the taxes are paid by the receiver, **compute** the relative attractiveness of a gift or bequest and recommend the best approach.

Answer:

Scenario 1:

$$\frac{[1 + 0.08(1 - 0.35)]^{20}}{1.654} = 1.67$$

Gifting now is more attractive.

Scenario 2:

$$\frac{[(1 - 0.25)(1 + 0.08(1 - 0.35))]^{20}}{(0.60)} = 2.067 / 1.654 = 1.25$$

Gifting now is not as favorable, but still best.



MODULE QUIZ 22.4

To best evaluate your performance, enter your quiz answers online.

1. The main objectives of estate planning are to minimize taxes and:
 - A. achieve effective diversification.
 - B. transfer assets to heirs or others.
 - C. maximize returns.
2. When investors make charitable gifts of appreciated securities, they are usually able to:
 - A. avoid capital gains taxes but are not able to take a deduction for the gift.
 - B. take a deduction in an amount designed to exactly offset the capital gains tax.
 - C. deduct the market value of the gift and avoid capital gains taxes.

3. Jan Jones has excess capital and is only concerned with maximizing the value of funds passed onto her heirs. She has an assumed after-tax return of investments of 8.5% with a tax rate on investments of 33%. Her heirs have an assumed pretax return on investments of 8% with a tax rate on investments of 25%. Gift and estate tax rates are 40% and 30%, respectively.
- A. If the gift would fall within the gift tax exclusion amount, discuss whether it is better to gift now or make a bequest.
 - B. If the gift would exceed the gift tax exclusion amount, discuss whether it is better to gift now or make a bequest.
 - C. Discuss any nonmonetary considerations in deciding whether to make a gift versus a bequest.

MODULE 22.5: ESTATE PLANNING AND FAMILY GOVERNANCE



Video covering this content is available online.

LOS 22.k: Describe considerations related to managing wealth across multiple generations.

CFA® Program Curriculum, Volume 4, page 331

Trusts

Trusts are a means by which a settlor (grantor) can transfer assets to beneficiaries outside of the probate process. The trustee (manager of the trust) holds the assets and manages them in the best interests of the beneficiaries according to the constraints of the trust documents. Trusts are recognized by, and are most prevalent in, common law countries.

Asset ownership can be a fuzzy concept with trusts. It might help to think of the assets as being placed in limbo somewhere between the settlor and the beneficiary. A trustee actually has possession of and manages the assets for the benefit of the settlor and/or beneficiaries and may be considered the owner of the assets for tax purposes only. Legal ownership of the assets may be held by the settlor or transferred to the trustee or beneficiaries, while ownership for tax purposes may reside with the settlor or the trustee. Therefore, the legal owner and the owner for tax purposes may be two different entities, depending on the structure of the trust.

In a **revocable trust**, the settlor can rescind (revoke) the trust and resume ownership of the assets. The settlor is considered the legal owner of the assets for tax and reporting purposes, and persons such as creditors and divorcing spouses may make claims against the trust assets.

In an **irrevocable trust**, the settlor relinquishes ownership and control. The trustee is considered the owner of the assets for tax purposes and is responsible for reporting and paying taxes on income generated by the trust. The irrevocable trust protects the trust assets from claims against the settlor. Note that a trust will not protect assets if it is deemed to have been created in anticipation of a claim.

The trustee may be responsible for distributing assets to the beneficiaries. In a **fixed trust**, the pattern of distributions to the beneficiaries is predetermined by the settlor and incorporated into the trust documents. When setting up a trust for a minor, for example, the settlor may wish the trustee to distribute a fixed portion of the assets when the minor reaches 21 years of age and then distribute a given percentage each year until the assets are depleted.

With a **discretionary trust**, the trustee determines how the assets are to be distributed. The primary concern is that the assets are distributed to produce the greatest benefit to the beneficiary. The settlor may convey general wishes through the trust documentation or through a letter of wishes. Beneficiaries have no legal right to either the income or the assets of the discretionary trust. Therefore, the trust assets are protected from claims against the beneficiaries.

There are several reasons for using a trust:

- Avoid giving control of assets to beneficiaries who would not be able to properly manage them.
- Allows the settlor to direct the assets for specific uses.
- Avoid dilution of ownership interest in a private business in countries where there is joint ownership and division of assets acquired during marriage.
- Avoid probate.
- There may be potentially lower tax rates. For example, the trust or the beneficiaries may be subject to a lower tax rate than the settlor. Or the trust could be set up in a country with a low tax rate.

Foundations

Foundations are most prevalent in civil law countries and maintain assets to fund charitable causes. Types of foundations include private and family. Foundations generally provide the donor with control in managing the assets. In many jurisdictions, private foundations are often bound by annual spending rules (e.g., 5% of investment assets) to maintain tax-free status. Additionally, the donor receives a tax deduction for the assets gifted to the foundation. It is becoming more common for foundations to have a fixed life rather than a perpetual one.

Life Insurance

As the only assets transferred by the grantor (policyowner) are the premiums paid, life insurance policies represent a very efficient means for transferring assets or even helping beneficiaries pay inheritance taxes. In many jurisdictions, the premiums are not usually considered part of the grantor's estate for tax purposes. In most jurisdictions, life insurance proceeds pass to beneficiaries without tax consequences. Depending on the jurisdiction, the policy might provide tax-free accumulation of wealth and/or loans to the policyholder on beneficial terms.

Life insurance can be used in combination with a trust. By establishing a trust on behalf of the beneficiaries and making that trust the direct beneficiary of the life insurance policy, the policyholder may transfer assets to young or disabled beneficiaries outside of the probate process.

Companies

A **controlled foreign corporation (CFC)** is set up in a country outside of the investor's home country for which the investor may hold assets. The investor would have a controlling interest in the company. It may be possible for the investment income earned in the CFC to escape taxation until the dividends are paid to the shareholder(s) or when the shares are sold.

Family Governance

Family enterprises often go through the following cycle: first generation generates wealth, next generation holds onto the wealth, and the last generation spends it. This reduction in wealth is caused by one or more of the following reasons: wealth dilution over many family members, no interest in continuing the family business, and poor financial literacy and planning. Therefore, a robust system of family governance could reduce the negative outcomes.

Family governance can be thought of as the mechanism for families to maintain and increase their wealth over the long term. The family values, mission, and vision must be determined as a group and there should be the appropriate legal documents and family agreements (binding and nonbinding) to allow for proper implementation of plans. Proper family governance will pay sufficient attention to the family's human capital (e.g., special skills with income-earning ability), intellectual capital, and social capital (e.g., philanthropy). Ultimately, proper communication within the family and teaching the younger members how to manage the family wealth will ensure maintenance of the wealth over the long term.

Governing Bodies Within the Family

Board of Directors (BoD)

A BoD is applicable at a much more advanced phase of the family business and may start out as an "advisory board" before evolving to a more formal BOD. Here, external expertise is brought in to assist in mitigating overconfidence bias, particularly with the business founder. The BOD is usually comprised of family members active in the business plus the external experts, and together, they must determine the business focus and objectives as well as make decisions in the best interests of the shareholders.

Family Council

Certain family members are selected to liaise directly with the BOD. Details of the family council are included in the family constitution, the latter of which would have been formulated with the input of the whole family.

Family Assembly

The family assembly is an annual (or more frequent) meeting of the family members to review the direction of the family business. One of the objectives of the family assembly is to promote transparency and minimize family conflicts in the process.

Family Office

The family office is an investment management hub but also fulfills other administrative duties such as accounting and legal.

Family Foundation

The family foundation is the philanthropic arm of the family, which is usually long term in nature. It is important to determine and agree upon the philanthropic goals.

Family Conflict Resolution

As conflicts are inevitable within families, it is important to have a clear **family constitution** in place. The family constitution is usually nonbinding but would normally contain sufficient detail to allow for the process of conflict resolution to begin. With conflict resolution, some or all of the issues discussed may become binding in the process.

Business Succession

Succession planning is usually focused on passing on the business to the next generation or simply selling it.

Passing the Business on to the Next Generation

The founder may do a direct transfer or use a trust to pass on the shares to the next generation. It could be done before death or upon death. If done before death, the founder could elect to maintain ownership of the voting shares to maintain control and only transfer the nonvoting shares. Another possibility is to transfer the voting shares only to the active members of the business and transfer nonvoting shares to the nonactive members.

During the transition, having both a BOD and family council in place could make the process more transparent and fairer to all family members. Ideally, the BOD will have sufficient external expertise and the family council will include members of each generation. Given that the family members will want to have access to funds to support their lifestyles, having a family council in place could help with satisfying the cash flow needs of the family members with the capital needs of the business.

Additionally, it is important that both the BOD and family council consist of members with diverse viewpoints to avoid social proof bias; it is the bias of “going with the flow” without being completely informed of the important details that could impact the decision.

Disposition of the Business

Assuming there is no appropriate person(s) in the next generation to pass on the business, a sale of the business may be necessary. As discussed earlier in the behavioral finance section, endowment bias is likely to be an issue, which could overinflate the seller’s expectations. The seller may need to be counseled as to what is most realistic. Furthermore, key issues such as taxation, liquidity, and philanthropy issues (amongst others) must be addressed during the transition, as they will likely have a significant impact on proceeds from the sale.

Timing of the Disposition

An estate freeze, establishing a limited partnership and gifting, or transferring to a trust may reduce taxes on future appreciation. Furthermore, the value of a nonpublicly traded family business should be reduced to reflect lack of liquidity/marketability as well as reflect a minority interest discount if the ownership percentage sold does not provide control. The value reduction could result in lower gift and estate taxes.

Choosing Trustees

Appointed trustees could be individual or institutional. The former may have a more “personal touch” and know the parties personally, which may allow the trustee to make more informed decisions. The latter may work well from a long-term perspective over several generations combined in lower fees and a wider skill set. It may be prudent to have an ongoing dialogue between trustees and beneficiaries to allow for the trustees to make decisions that would be consistent with the settlor’s desire while at the same time ensuring that the beneficiaries’ needs are met.

If a family is large enough or has a sufficiently large amount of assets, a private trust company (PTC) that is tailored specifically for that family may be useful.

After the Disposition

The sale proceeds will give rise to a sudden liquidity inflow. Those funds could be used to finance the next business venture or be donated to charitable causes. Regarding the latter, the family should be able to agree on the next steps in terms of charitable goals and maximizing its social capital. In some cases, the family may desire to be less broad with its philanthropy and specify which charities to donate to and how much.

Planning for the Unexpected

Divorce

Some countries may recognize the rights of those involved in long-term domestic arrangements while others only recognize rights when there is a formal marriage in place.

The division of financial assets in the event of a marriage breakdown should be addressed in advance—that is often done through a prenuptial agreement (before marriage). Postnuptial agreements occur after the marriage is over and deal with financial matters after the marriage. Depending on the country, such agreements may or may not be binding.

If a prenuptial agreement is not in place, then the courts may need to get involved and could end up making decisions that may not be acceptable by one or both parties.

Finally, some jurisdictions do not consider marital assets to consist of only those that were acquired as part of the marriage. For example, inherited assets (before or during the marriage) by one spouse only, such as a family business, may be considered joint marital assets. In such a situation, trusts and other vehicles could be used to place the family business in a separate entity that would not be subject to division between the former spouses upon divorce.

Incapacity

Living wills and durable powers of attorney can be used to address potential incapacity in the future. A living will addresses an individual’s medical care upon becoming incapacitated and is usually a legally binding document. A durable power of attorney allows a guardian to act on behalf of the grantor even after the grantor becomes incapacitated. The power of attorney often covers financial and medical matters.

Having a living will and/or durable power of attorney far in advance is potentially important in managing family wealth, as it allows decisions to be made by a guardian without delay upon the wealth owner becoming incapacitated. Furthermore, advance

planning allows a suitable and qualified guardian to be appointed, likely one who is familiar with the business and family matters.



MODULE QUIZ 22.5

To best evaluate your performance, enter your quiz answers online.

1. For estate planning purposes, investments in privately held companies are usually:
 - A. tax efficient because gains realized are usually taxed at long-term rates.
 - B. tax inefficient because it is difficult to determine fair market value; therefore, the correct amount to be taxed cannot be determined.
 - C. tax efficient because they can be transferred from an estate using a valuation discount.
2. Jim Johnson is a widower and has a large amount of excess capital. He can either (1) make a very large gift now or bequest at death to his children or (2) make a gift now or bequest at death to his grandchildren.
 - A. **Discuss** any financial or nonfinancial considerations that will determine if he disposes of the assets directly to his children or his grandchildren.
 - B. **Discuss** how a trust might be used if he has reservations about the ability of his grandchildren to manage the money. **Recommend** and **explain** why a fixed or discretionary trust is likely to be best.

KEY CONCEPTS

LOS 22.a

The main categories of taxes are income tax, capital gains tax, wealth/property tax, stamp duties, and wealth transfer tax.

The general equation for capital gains is as follows:

$$\text{net sales price} - \text{tax (cost) basis} = \text{capital gain/loss}$$

Realized capital gains occur upon the actual disposition of an asset. Unrealized capital gains are “paper gains,” which represent appreciation on unsold items. Depending on the holding period of the investments, the capital gains may be subject to a short-term (usually higher) rate or a long-term (usually lower) rate. Some countries differentiate between investment gains (lower or no tax on capital gains) and trading gains (taxed at regular rates).

There are three main types of investment accounts: taxable, tax deferred (TDA), and tax exempt (TEA).

LOS 22.b

A tax haven is a jurisdiction with very low or no tax rates for residents and foreign investors.

A territorial tax system taxes only income that is earned locally (e.g., Hong Kong SAR).

A worldwide tax system will impose taxes on all sources of income, which inevitably leads to double taxation, i.e., taxation on the same income by more than one jurisdiction. However, relief may be provided in the form of tax credits by the home jurisdiction for taxes already paid in the source jurisdiction or bilateral tax treaties.

LOS 22.c

A tax-efficient strategy results in relatively high after-tax returns compared to pretax returns.

There are four common metrics used in examining tax efficiency:

- After-tax holding period return.
- After-tax post-liquidation return.
- After-tax excess returns.
- Tax-efficiency ratio.

LOS 22.d

Taxable accounts involve one or more tax rates on income (e.g., interest, dividends) or returns (e.g., realized capital gains) to determine R' .

$$FV_{AT} = (1 + R')^n$$

With TEAs, after-tax funds are deposited so no tax is due on the returns earned or on withdrawals.

$$FV_{AT} = (1 + R)^n$$

With TDAs, pretax funds are deposited and the investor may take a tax deduction for the amount contributed, thereby reducing taxable income and taxes due. All tax is deferred until withdrawal, allowing tax-deferred compounding.

$$FV_{AT} = (1 + R)^n(1 - t)$$

In general, tax-efficient assets (e.g., equities that generate capital gains, which are often subject to lower tax rates) should be placed in taxable accounts and tax-inefficient assets (e.g., taxable bonds that generate taxable interest, which is often subject to higher tax rates) should be placed in tax-exempt or tax-deferred accounts.

LOS 22.e

Tax management strategies can be classified as follows:

- Investments held in a manner to minimize taxes (e.g., tax-exempt accounts, lower long-term capital gains tax rate)
- Deferring income recognition (e.g., limiting dispositions, waiting for tax rates to fall, tax loss harvesting)

Four common investment vehicles include:

- Partnerships
- Mutual funds
- Exchange-traded funds (ETFs)
- Separately managed accounts (SMAs)

Tax loss harvesting involves the sale of securities with embedded losses to offset gains, which will lower the tax liability for the current year.

Many tax authorities allow a form of tax lot accounting. When an investor makes a partial sale and has acquired the stock on different dates, each at a different cost, the investor may select which tax lots applied to the sale. There are some possibilities:

- Highest in, first out (HIFO) is generally optimal.

- In case future tax rates are expected to be *higher* than current tax rates, first in, first out (FIFO) may be better.
- In case future tax rates are expected to be *lower* than current tax rates, last in, first out (LIFO) may be better.

LOS 22.f

In choosing a strategy to manage the concentrated position, the following factors should be considered:

- Level of concentration—the higher it is, the timelier the response needs to be to reduce the risk.
- Tax basis and tax rate—the lower and the higher, respectively, the greater the taxes due.
- Liquidity—the more illiquid, the greater the costs of risk reduction.
- Time horizon—more time may allow the concentration to be reduced gradually, which lowers the overall cost.
- Investor restrictions—restrictions may prevent an outright sale.
- Nonfinancial matters—emotional attachments may hinder the risk reduction process.

LOS 22.g

Strategies for managing a concentrated position in public equities include the following:

- Staged diversification strategy over multiple years to spread out tax liability
- Completion portfolio using other assets to complement/complete the concentrated position
- Equity monetization by hedging a large part of the risk in the position using derivatives and then borrow using the hedged position as collateral
- Zero-cost collars used to lower initial cost by giving up some stock upside, the put premium paid and call premium received are equal
- Covered call writing can be a staged diversification assuming the share price appreciates sufficiently
- Exchange fund with a pooling of investments on a tax-free basis
- Charitable remainder trust to benefit both beneficiaries and a designated charity

LOS 22.h

Strategies for managing concentrated positions in privately owned businesses include the following:

- IPO
- Direct sale to another investor
- Sale of non-essential business assets
- Personal line of credit secured by company shares (owner borrows from company or from a third-party lender)
- Leveraged recapitalization (e.g., private equity firm)
- Sale to employee stock ownership plan

Strategies for managing concentrated positions in real estate include the following:

- Mortgage financing (e.g., nonrecourse loan)
- Donor-advised fund or charitable trust (e.g., avoid tax on gains and depreciation recapture)

LOS 22.i

An individual's estate is everything that is owned by the individual. Estate planning is the planning process associated with transferring the estate to others during an individual's lifetime or at death so the assets go to the individuals or entities intended and in the most efficient way.

Key objectives in gift and estate planning include the following:

- Ensuring adequate liquidity and ongoing income
- Control over assets
- Asset protection
- Tax-effective transfer of assets
- Maintain family wealth
- Business succession
- Charity

LOS 22.j

Computing estate and/or inheritance taxes may involve a flat tax rate or a progressive tax rate schedule.

There are three benefits of charitable gifts:

- The donor usually does not have to pay gift tax.
- The donor receives an immediate tax deduction for the gift, which reduces the donor's current year tax liability.
- The charity is usually tax exempt, so it can invest the funds and there will be tax-free compounding.

In looking at the relative value of a tax-free gift, consider the following equations:

- $RV_{\text{tax-free gift}} = FV_{\text{gift}} / FV_{\text{bequest}}$
- $FV_{\text{gift}} = [1 + r_g(1 - t_g)]^n$
- $FV_{\text{bequest}} = [1 + r_e(1 - t_e)]^n(1 - T_e)$

LOS 22.k

Trusts, foundations, life insurance, and companies are common estate planning tools. It is important to distinguish between testamentary versus inter vivos trusts, revocable versus irrevocable trusts, and fixed versus discretionary trusts. Trusts are used mainly for control, asset protection, and tax management reasons.

Family governance can be thought of as the mechanism for families to maintain and increase their wealth over the long term. Governing bodies may include a board of directors, a family council, a family assembly, a family office, and a family foundation. Conflict resolution begins with the family constitution.

Other important issues to anticipate include business succession/disposition, divorce, and incapacity.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 22.1

1. **A** Some of the gain will be deferred each year and such stocks pay low dividends. Bonds and value stocks will pay more of their return in the more heavily taxed interest and dividends. (LOS 22.a)
2. **C** The return after taxes on interest income, dividends, and realized capital gains factors in the proportions of the return sources and the respective taxes on each is calculated as follows:

$$0.15[1 - 0.10(0.35) - 0.25(0.20) - 0.35(0.20)] = 0.15(0.845) = 0.12675 = 12.68\%$$

(LOS 22.c)

Module Quiz 22.2

1. **C** The expected future value after paying annual taxes:

$$\$1,000[1 + 0.05(1 - 0.30)]^{10} = \$1,410.60$$

(LOS 22.d)

2. **B** The expected after-tax balance in the account in 20 years:

$$\$100,000[(1.10)^{20}(1 - 0.30)] = \$470,925$$

(LOS 22.d)

3. **C** The expected balance in the account in 20 years (no taxes need to be paid for a TEA):

$$\$100,000(1.10)^{20} = \$672,750$$

(LOS 22.d)

4. **A** The investor has \$480,000 [$\$800,000 \times (1 - 0.40)$] after tax invested in equity. The bonds in the tax-exempt account are not subject to taxation and, therefore, are not adjusted. On an after-tax basis, the investor has 44.4% in equities [$\$480,000 / (\$480,000 + \$600,000)$] and the other 55.6% in bonds [$\$600,000 / (\$480,000 + \$600,000)$]. (LOS 22.d)
5. **C** Some countries exempt the interest income for some types of bonds from taxation. Because most of the return from bonds is interest income, there is no benefit in placing such tax-exempt bonds in a TDA because no tax is owed. The after-tax return from standard (taxable) corporate bonds would benefit from locating them in the TDA because their income return is generally taxed. High-growth stocks pay small dividends and provide most of their return from capital gains. By extending the holding period, tax deferral will be possible even in a taxable account. In turn, the greatest benefit is from locating the corporate bonds in the TDA. (LOS 22.e)

6. **C** If the stock is sold, there is a capital loss of \$50,000 (\$90,000 – \$140,000), so combined with the \$80,000 capital gain, there is a net capital gain of \$30,000. The tax is $30\% \times \$30,000 = \$9,000$.

If the stock is not sold, the taxes on the full gain are $\$80,000 \times 30\% = \$24,000$. The recognition of the capital loss would result in a tax savings of \$15,000 (\$24,000 – \$9,000). In that case, the benefit from harvesting the loss can also be calculated as the capital loss times the tax rate: $\$50,000 \times 30\% = \$15,000$. (LOS 22.e)

7. **A** The appreciation rate is the same in both cases, and assuming future tax rates do not change, there is a benefit to the tax deferral inherent in tax loss harvesting. Tax loss harvesting changes the pattern of tax payments (e.g., the payments are pushed into the future). However, if the stock is sold in the current year, the tax savings of \$15,000 can be immediately reinvested and earn the 10% return. Therefore, strategy 1 will provide the higher future accumulation. (LOS 22.e)

Module Quiz 22.3

1. **B** A 10% position is not that concentrated and the contribution to portfolio-specific risk is not that great. Of the two 40% positions, the owner has less reason to diversify and reduce specific risk because the owner has much more control and is more likely to want the risk as a way to build wealth. The executive has less control with the most need to diversify and reduce specific risk. (LOS 22.f, 22.h)
2. **B** Using the building for a business the warehouse owner also owns gives him a reason to retain control. (LOS 22.f, 22.h)
3. **A** With a public company, the share price (value) should be relatively easy to determine. In contrast, with a private company, the value is more difficult to determine and is subject to the intended use of the buyer and other factors. Currency and tax issues would have to be analyzed in either situation. Taxation might be more straightforward in selling the stock of a public company, but determining value is the most significant and time-consuming issue in valuing a private company. (LOS 22.h)

Module Quiz 22.4

1. **B** The primary objectives of estate planning are to minimize taxes and to facilitate the tax-efficient transfer of assets to heirs or recipients of charitable bequests. Diversification and maximizing returns are usually not the objectives of estate planning and are part of the grantor's/settlor's investment policy statement while accumulating assets throughout working years and throughout retirement. (LOS 22.i)
2. **C** When an investor makes a charitable gift of appreciated securities, the investor is usually able to avoid gift transfer taxes and can take an income tax deduction equal to the current fair market value of the gift. The appreciated securities continue to avoid capital gains taxes once transferred to the tax-exempt organization. (LOS 22.j)
3. **A** The giver can earn a higher after-tax return of 8.5% versus 6% for the receiver ($8\%(1 - 0.25) = 6\%$). *Note the return for the giver is in after-tax terms while the return for the receiver is given in pretax terms.* That favors waiting to make a bequest at death if the investment is held in the estate long enough and

compounding at the higher rate of 8.5%. But giving now avoids any estate tax that could lower the return to less than 6%, making giving now more beneficial assuming that the gift tax is avoided. The relevant equation is as follows:

$$FV_{\text{gift}} / FV_{\text{bequest}} = [1 + r_g(1 - t_g)]^n / [1 + r_e(1 - t_e)]^n(1 - T_e)$$

Until the time period (n) is known, the optimal solution of gifting now versus making a bequest is unknown.

B The giver can earn a higher after-tax return, and waiting to make a bequest will be subject to a lower transfer tax of 30%. Therefore, wait and make a bequest.

C Gifting now gives up control and the assets cannot be recovered if the giver changes their mind or needs the funds. That may create a reason to wait and make a bequest. (LOS 22.j)

Module Quiz 22.5

1. **C** Investments in privately held companies are usually tax efficient from an estate planning perspective because they can be transferred after taking a valuation discount, which reduces the basis on which the transfer tax is calculated. The discount relates to uncertainty of true value as well as lack of liquidity and sometimes control. It is true that they are also tax efficient from the standpoint that any gains realized are usually taxed at favorable long-term rates but that pertains to liquidating the assets that would normally not be done before transferring them in an estate. (LOS 22.k)
2. **A** The primary financial consideration for Johnson would be whether he is subject to generation-skipping transfer tax (GSTT). In the absence of GSTT, transferring assets directly to his grandchildren avoids possible double taxation. However, he must check whether his country has a GSTT and whether it might have a lifetime GSTT exclusion amount so that only transfers above the exclusion amount would attract GSTT.

The primary nonfinancial issue to consider is whether his children need some of the funds, in which case, some of the money will need to go to them.

3. **B** Place the funds in a trust that will be managed for the benefit of the grandchildren. Discretionary is almost certainly best because the trustee can then make decisions to best meet Johnson's intent for how to take care of the grandchildren. (LOS 22.i, LOS 22.k)

The following is a review of the Private Wealth Management (2) principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #23.

READING 23: RISK MANAGEMENT FOR INDIVIDUALS

Study Session 11

EXAM FOCUS

Be sure you recognize insurance is a risk management and transfer mechanism that in aggregate reduces the expected wealth of the users. Its primary purpose is to protect against adverse financial consequences. Life insurance can insure against premature death and annuities against living too long. Hence, they are risk management tools for the total wealth of the user.

Not every risk warrants the use of insurance. If a risk can be reduced or avoided, that is often the simplest and least expensive way to deal with it. In other cases, it may be best to just accept the risk. If neither of those approaches is acceptable, it may be possible to purchase insurance that will provide monetary compensation if the risk occurs. An investment manager may be able to help clients determine the best approach to a given situation and advise how that solution can change over the client's stages of life.

MODULE 23.1: HUMAN AND FINANCIAL CAPITAL



Video covering this content is available online.

LOS 23.a: Compare the characteristics of human capital and financial capital as components of an individual's total wealth.

LOS 23.b: Discuss the relationships among human capital, financial capital, and economic net worth.

CFA® Program Curriculum, Volume 4, page 366

An investor's **total wealth** is composed of both human capital and financial capital. **Human capital (HC)** is the discounted present value of expected future labor income. **Financial capital (FC)** is the sum of all the other assets of an individual. This includes financial items such as stocks, bonds, and alternative investments as well as personal items such as a home, car, and other physical assets.

Expected defined benefit (DB) plan benefits for an individual have elements of both HC and FC. DB benefits are deferred labor income, which suggests treating them as HC, but they have already been earned and paid for with past labor to provide future cash flow. This is more analogous to buying a financial asset (FC) and receiving future cash flows. An individual's expected DB plan benefits are best considered as part of the individual's FC.

Human Capital

Valuing **human capital** is analogous to valuing a stock or bond. Value is the discounted PV of future cash flows. The discount rate applied to the future cash flows is related to the riskiness of the cash flows. Higher risk employment requires a higher discount rate and all else the same reduces the value of the HC. Examples include high yield bond managers and downhill ski racers. Lower risk employment is discounted at lower discount rates. Examples include union employment and tenured college professors.

While the valuation is simple in theory, HC can only be estimated. The estimate requires multiple assumptions: projected future earnings and their rate of growth, mortality rates to determine the probability the earnings will be realized, nominal risk-free discount rates, and income volatility to determine the discount rate. All of these variables are subject to change over time.

EXAMPLE: ESTIMATING HC

Alex Hamilton is 62 and expected to retire in 3 years. His current annual wage is 100,000 and expected to increase 4% per year. The risk-free discount rate is 3%, and his continued employment is considered very risky. A 10% risk premium is assumed. Using this information and the survival probabilities in the table, calculate his HC.

Increase earnings by 4% per year for the 3 years of employment, probability weight the earnings, and discount to the present value (PV) at 13% per year. 13% is the risk-free rate plus the risk premium.

Year	Probability of Life	Projected Wage	Probability Weighted	PV
1	98%	104,000	101,920	90,195
2	98%	108,160	105,997	83,011
3	97%	112,486	109,111	75,619
4	97%	0		
5	96%	0		
HC =				248,825

Financial capital is the value of all other assets owned by the individual. It includes current assets such as money market assets that may be consumed within the next year, personal assets such as a car or furniture that are likely to be consumed over time, and investment assets that may appreciate over time. Some assets such as real estate may have both consumption and investment characteristics. Investment assets include both publicly traded marketable assets, which are relatively easy to value, and non-publicly traded. The later include:

- Real estate (other than publicly traded REITs). A home is often an individual's largest single asset and may also be highly leveraged. If leveraged with recourse, default on the loan allows the lender to claim other assets of the individual as well. On a non-recourse loan, the lender can only seize the mortgaged property.
- Annuities (see further discussion later) are economically equivalent to a private defined benefit plan in that they pay a continuing income stream. Their value should include some discount of future cash flows to reflect the potential the payer may default.
- Cash-value life insurance (see further discussion later) is life insurance with a provision to borrow or take some present value portion of the future payout prior to death (which reduces the ultimate payout).

- Business assets or private equity may represent a substantial portion of wealth for some self-employed individuals. This can lead to concentrated risk exposures in the investor's wealth.
- Collectables (such as paintings and book collections) often involve substantial transaction costs and can have elements of personal consumption and utility as well as investment value.
- Pensions can be a significant non-marketable financial asset for some. The pension could be from a private or government entity. The vested portion of the pension already belongs to the individual and can be valued as the discounted value of benefits to be received (PV). The discounting must also include a mortality projection if payments are contingent on the beneficiary being alive (which is typical). The discount rate will reflect the riskiness of the plan portfolio and sponsor as well as any other guarantees or insurance of payment. Future payments of the pension may be indexed for inflation. Typically government pensions will be less risky.

Financial Stages of Life

Net worth is the sum of the individual's FC and HC less any liabilities owed by the individual. A typical individual might start an employment career with high HC and low FC. As remaining work career decreases with age, HC generally declines over time while FC increases as the individual saves and invests.

LOS 23.c: Discuss the financial stages of life for an individual.

CFA® Program Curriculum, Volume 4, page 375

Education. The individual gains knowledge and skills through formal and informal education and apprenticeship. There is minimal emphasis on saving or risk management.

Early career. The individual enters the workforce, often starts a family, and assumes other personal responsibilities. Saving may be difficult and life insurance may be needed to insure substantial HC against death and the cessation of work income to meet continuing financial obligations to the family.

Career development. After becoming established in a career, job skills can continue to expand and upward mobility increases. Financial obligations often increase to fund the college education of children. Successful individuals generally build FC and retirement savings over time.

Peak accumulation. FC accumulation is typically greatest in the decade before retirement. Earnings and the need to accumulate funds for retirement are high. Financial obligations to educate the children are ceasing. Investment risk may start being reduced in anticipation of retirement. Career risk can also be high as it can be more difficult to find equivalent employment in the event of unplanned job loss.

Preretirement. Emphasis continues to be on accumulating FC for retirement, beginning to reduce investment risk, and tax planning for retirement.

Early retirement. Individuals adjust to a new lifestyle. For those with FC and good health, expenses could increase as they make use of the free time. The portfolio emphasis is on managing the portfolio so it will last for the remaining lifetime.

Late retirement. This stage is highly unpredictable. Individuals face longevity risk (out living their assets), increasing health care expenses could be an issue, and cognitive functions used to make decisions can decline.

In all stages, there can be unpredicted needs for health care and/or to care for family members.

The Individual's Balance Sheet

LOS 23.d: Describe an economic (holistic) balance sheet.

CFA® Program Curriculum, Volume 4, page 378

The **economic (holistic) balance sheet** extends the traditional balance sheet assets to include HC. Liabilities are extended to include consumption and bequest goals. This more complete economic view allows better planning of resource consumption to meet remaining lifetime goals as seen in the following example of an economic balance sheet. Note that a defined contribution plan balance with an explicit balance would likely have been included in the traditional balance sheet, but DB plan estimated PV likely would not.

EXAMPLE: Holistic balance sheet

(The items in bold italics are those not found on a traditional balance sheet.)

Assets (in thousands):		Liabilities (in thousands):	
Financial		Short-term debt	175
Current assets	500	Home mortgage	500
Investment assets	1,500		
Non-marketable		<i>Primary capital to fund lifetime expenses</i>	<i>3,500</i>
Home	750		
DC plan balance	1,450		
<i>Private pension</i>	<i>40</i>	<i>Planned bequests</i>	<i>1,000</i>
<i>Government pension</i>	<i>450</i>		
Human			
<i>Future labor income</i>	<i>250</i>		
Total Assets	4,940	Total Liabilities	5,175

Based only on the traditional balance sheet, the assets of 4,200,000 well exceed explicit debts of 675,000, while the holistic balance sheet shows negative net worth of 235,000. This suggests consumption and bequest plans are unrealistic. However, it is generally more difficult to value the additional items on the economic balance sheet, and the negative net worth could be an estimation error. There could also be missing economic assets such as expected inheritance that need to be included. If net worth is actually negative, it indicates ultimate spending plans will eventually have to change. The relatively low amount of HC (not pension benefits) suggests the individual is near retirement.

For many individuals, total wealth (HC + FC) as well as FC will peak near retirement. Both will then be drawn down in retirement.

The composition of the balance sheet is likely to change over the individual's life cycle. HC is likely the dominant asset for younger individuals. Over time, HC will decline as remaining work life shortens. FC should increase as the individual saves and invests in FC. Net worth can be positive or negative based on the adequacy of savings versus projected needs. Early in the life cycle assets such as real estate and other tangible assets may dominate the balance sheet. Other FC is then likely to increase in the later stages of life as funds are saved and invested. In early retirement, pension benefits are the dominant asset for many. For wealthier individuals pension benefits may be relatively smaller and FC may be relatively larger.

MODULE 23.2: RISKS AND INSURANCE



Risk management for individuals requires:

Video covering
this content is
available online.

- Specifying the objective, which is to maximize household welfare (utility).
- Identifying the risks to FC and HC.
- Evaluating and managing those risks through:
 - Risk avoidance: choose actions to avoid the chance of the loss occurring.
 - Risk reduction: choose actions that reduce the likelihood or amount of the loss.
 - Risk transfer: use insurance products to transfer the loss to others.
 - Risk retention (self-insurance): maintain sufficient assets to absorb the loss.
- Monitoring results and adjusting as needed.

LOS 23.e: Discuss risks (earnings, premature death, longevity, property, liability, and health risks) in relation to human and financial capital.

CFA® Program Curriculum, Volume 4, page 385

The typical risks for individuals include:

- **Earnings risk** (insure with disability insurance) refers to loss in HC. Job loss and other career disruptions can reduce HC and may even lead to the need to consume FC prematurely. Some jobs are inherently more risky than others. A logger has a higher probability of death or injury and resulting loss of HC. A high risk security manager may have a higher risk of job termination. Other jobs are at risk of a location transfer, which could disrupt the HC of a spouse whose job is less mobile and reduce the household's total wealth. Other jobs are cyclical, and income for the self-employed can be less certain.
- **Premature death risk** (insure with life insurance) can be a serious risk early in the career when substantial HC could be lost. In addition, it may cause unexpected expenses that consume limited FC of the survivors.
- **Longevity risk** (insure with annuities) is the opposite of premature death risk as individuals who live too long are at risk of outliving their FC. The determination of how much capital is required for retirement is complicated and risky. A given individual's lifespan is highly uncertain. The return on portfolio assets, rate of inflation, the inclusion or exclusion of inflation adjustment in DB payouts, distribution needs, and other income sources must be estimated. Mortality tables and Monte Carlo simulations are generally used to quantify longevity risk.

- **Property risk** (insure with property insurance) refers to sudden loss in value of physical property (FC). A house or car can be damaged or lost in a flood, a direct loss. This can also trigger unexpected needs such as temporary living or transportation expense or lost income such as rental income, leading to consumption of FC and reduction in total wealth. The loss of business property could reduce FC and also HC of the owner if the property is necessary to generate business income.
- **Liability risk** (insure with liability insurance) refers to being legally responsible for damages and a reduction in FC. The driver of a car may be responsible for damages or loss of life caused by an accident.
- **Health risk** (insure with health insurance) can lead to direct loss of FC to pay illness or injury related expenses. It can reduce HC through diminished or inability to work. It can also affect future expense needs and life expectancy. Coverage for health risk varies widely by country. Government and/or private insurance may provide for short-term but not for long-term care.



MODULE QUIZ 23.1, 23.2

To best evaluate your performance, enter your quiz answers online.

1. An individual's present value of future defined benefit payments will *most likely* be classified as:
 - A. financial capital.
 - B. human capital.
 - C. financial capital and total wealth.
2. Financial capital is *least likely* to peak at retirement for:
 - A. the very wealthy.
 - B. those with a pension.
 - C. those who purchase an annuity.
3. Individuals are *most likely* to need substantial amounts of life insurance in which stage of life?
 - A. Education.
 - B. Career development.
 - C. Early retirement.
4. An individual with negative net worth on a traditional balance sheet:
 - A. should reduce expenses.
 - B. should increase risk in their investment portfolio.
 - C. may have positive net wealth.
5. An individual with a large alternative investment holding in art work is *most likely* to need:
 - A. property insurance.
 - B. life insurance.
 - C. liability insurance.
6. An individual is about to retire. She will receive her first annual pension payment of \$25,000 immediately upon retirement and immediately spend it on a lavish vacation. Then, one year later, she will receive another payment. Each payment will increase by 5% from the previous payment amount. Given her life expectancy, she expects to receive a total of 11 payments.
 The risk-free discount rate is 3%, and the risk premium for the pension is 8%. Ignoring the first payment, which she will immediately spend, the pension asset of 10 payments to include on the individual's holistic balance sheet is *closest* to:
 - A. 170,000.
 - B. 185,000.

MODULE 23.3: LIFE INSURANCE



Video covering
this content is
available online.

Basic Life Insurance Terminology

- *Benefits or face amount.* The future payout (e.g., \$1,000,000). The terms may specify payout as a lump sum or an annuity.
- *Premium.* The cost of the insurance.
- *Cash value.* What the owner can withdraw before payout, which reduces or terminates final payout.
- *Paid up.* A date when the insurance is fully paid for and no additional premiums are required.
- *Limitations.* Restrictions on the payout of the insurance amount (e.g., misrepresentation of the health status of the insured leading to no payment).
- *Contestability period.* Time period for the insurance company to investigate or deny payment of the claim.
- *Identity of the insured.*
- *Policy owner.* Responsible for making premium payments, often the insured. If the owner is not the insured, he must have an insurable interest in the insured. In other words, the owner must have a vested interest in the continued life of the insured and not simply be speculating on the insured's death.
- *Beneficiaries.* Receivers of the payout.
- *Premium schedule.* Amount and frequency of payments.
- *Riders.* Additional provisions included in the policy.
- *Modifications.* Allowable changes that can be made to the policy.

LOS 23.f: Describe types of insurance relevant to personal financial planning.

CFA® Program Curriculum, Volume 4, page 390

Life insurance protects the survivors from the adverse financial consequences of the insured's premature death. The optimal amount of insurance depends on the cost of the insurance and the loss in value to the survivors caused by the death. The insurance can also provide liquidity to meet death and estate expenses. This is more important if the other estate assets are illiquid. Some life insurance provides tax benefits by accumulating cash value on a tax-sheltered basis.

Life insurance can be grouped in two main types: temporary and permanent. Both require continuing payment of premiums to remain in effect. The premium is often paid annually or on some other designated basis.



PROFESSOR'S NOTE

Insurance terminology is not mutually exclusive. Think of term insurance as pure insurance. What is the cost to charge all members of a large group today such that the funds will cover the payout on those who die this year? In simple terms, if the group includes 100 people, probability of death for any one is 1%, and the payout on death is GBP100,000, charge each individual GBP1,000. For permanent insurance, start with a premium today (higher than GBP1,000) that, if held constant and invested, will for the life of the group provide sufficient

funds to pay the death benefit for all members of the group. A 5-year level payment term policy will have some of the characteristics of permanent insurance, but the price will be closer to pure annual insurance. First we discuss the general differences in life insurance type and then we get further into the pricing issue.

Temporary (term) insurance covers only a designated period such as 1, 5, or 20 years. The cost can be fixed or increasing over the designated period. The policy then ceases at the end of the period unless it includes a provision to renew the policy. Term insurance is less costly than permanent insurance because the mortality risk is lower for the insurance company as the individual's risk of dying increases later in life (after the insurance ceases). The mortality risk also means term insurance for younger individuals and for shorter time periods will cost less than for older individuals and longer periods, all other factors the same.

Permanent insurance is more costly and lasts for the life of the insured. The premium (cost) per period is usually fixed, and the policy builds value as the premium exceeds the pure cost of insurance in the initial years. In later years, this built up value covers the increasing cost that would be paid for pure (term) insurance. Permanent insurance can be categorized as whole life or universal insurance.

Whole life typically has a fixed annual premium payment. The policy continues and the policy cannot be canceled by the insurance company as long as premiums are paid. The non-cancelability makes purchase at a young age more desirable as new insurance may be unavailable or much more expensive if the insured person's health deteriorates. The policy may also reach a fully paid status in later years and require no further premiums. Participating whole life shares in company profits and may increase in value more quickly.

Universal life is similar in concept but with more flexibility. The premium payment can be increased or decreased to increase or decrease the amount of insurance and/or the rate at which cash value grows. There may be investment choices for where the premiums are invested. Premium payments can be discontinued and the insurance continues (a non-forfeiture clause) as long as the cash value and earnings on the cash value are sufficient to pay the pure (term) cost of insurance each period.

Life insurance policies can include riders, which provide additional benefits. Accidental death and dismemberment (AD&D) increases the payout if the insured dies or is dismembered in an accident. Accelerated death benefits (ADB) pay part or all of the insurance amount if the insured is terminally ill. A viatical settlement allows the sale of the policy to a third party. This provides immediate funds to the beneficiaries. The third party becomes the policy beneficiary and is responsible for future premium payments. Guaranteed insurability allows the purchase of more insurance regardless of future health. Waiver of premium keeps the insurance in force without premium payments if the insured becomes disabled.

LOS 23.g: Describe the basic elements of a life insurance policy and how insurers price a life insurance policy.

CFA® Program Curriculum, Volume 4, page 394

Life insurance pricing is simple in concept but complex in application. It is a large time value of money problem. The insurance company must charge sufficient premiums such that the money after investing the premiums is sufficient to pay the policy benefits, cover the company's costs, and leave a profit. The company is applying the law of large

numbers. The remaining term of life for any one individual is highly uncertain, but predictable in aggregate for a large group. The pricing model can be broken down into three issues:

- **Mortality estimates.** Mortality tables are built to reflect past experience and future projections of mortality. Probability of death ($1 - \text{probability of life}$) can be refined and based on age, health, gender, and lifestyle choices. An 80-year-old male smoker in poor health who sky dives will pay more than a 40-year-old healthy woman with safer hobbies. The insurance company will gather information regarding the insurability of the applicant and may employ third party investigators and medical professionals to assess the risk factors. The company's goal is to avoid adverse selection and undercharging for the risks assumed.
- **Net premium.** Based on the assumed mortality rates, the company estimates the net premiums to charge for insurance based on an assumed discount rate. The discount rate is also the assumed rate of return on investing the premiums. At that discount rate, the premiums must be sufficient such that the PV of the premiums and payouts are equal (i.e., the premiums must be sufficient to pay future benefits).
- **Load.** The load plus net premium is the **gross premium** charged for the insurance. The load must cover the company's operating cost and expenses for writing the policy. This can include a sales commission to sell the policy and cost of any medical tests to determine insurability. Stock companies are owned by shareholders and must include a planned profit to provide a return to shareholders. Mutual companies are owned by the policyholders but must also charge more than the net premium to cover risk. If costs are eventually less than expected, some policies allow the policyholders to receive a dividend (which is technically a return of premium).

For a simple one-year term insurance policy, the application is relatively simple. Risk is limited as only one year of variables must be considered to estimate the net premium for pure insurance. Load will also be fairly simple to estimate. If the policy is renewed the following year, a new gross premium will be calculated. For a level payment multi-year term policy, the process is slightly more complex. The level premium will be higher than the year 1 and less than the year 5 premium for annual term. The premium is conceptually a weighted average of five sequential one-year term premiums. In reality, it should be higher as the company is at greater risk; it must project the relevant variables for the five-year period and cannot change the premium each year. See Figure 23.1 and Figure 23.2.

Figure 23.1: Annual Term Insurance for \$100,000

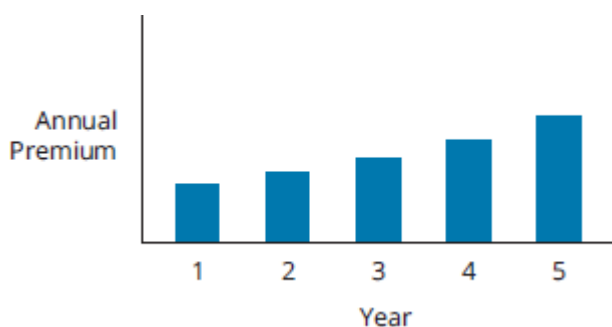
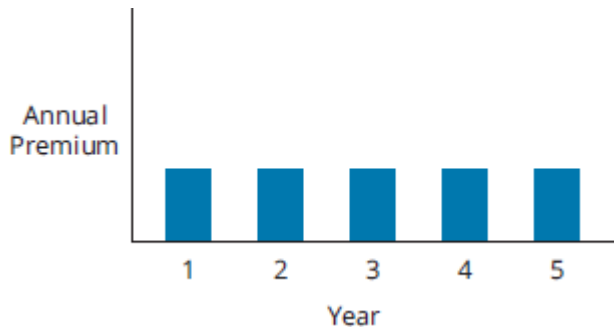
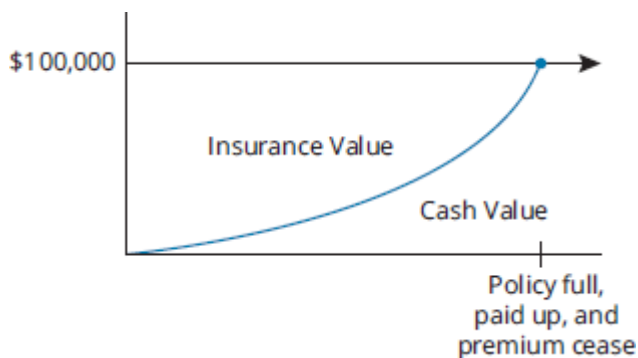


Figure 23.2: 5-Year Term Insurance for \$100,000



Permanent insurance pricing extends the same concepts, but with more uncertainty as the ultimate life expectancy of the insured individual has to be considered. The longer time period puts the insurance company at greater risk in correctly estimating mortality rate, discount rate (return on invested premiums), and expenses. These factors will make the initial premium higher. In addition, many such policies include a buildup of cash value that the policyholder can access before policy payout. The cash buildup is created by charging an even higher premium. Such policies typically include a paid up date when return on cash value is sufficient to pay future costs of insurance and premiums cease. See Figure 23.3.

Figure 23.3: Insurance Versus Cash Value in Permanent Insurance for \$100,000



Comparing cost between insurance policies becomes more difficult as policy complexity increases. For annual term, when all else is the same, the lowest premium is lowest cost. For permanent insurance, the number of variables makes comparison complex as it is highly unlikely any two policies will be the same. Two common approaches are the **net payment cost index** and **net surrender cost index**. Both require an assumed age of death for the insured and a discount rate. The second also requires a cash value projection.



PROFESSOR'S NOTE

There is no direct LOS for these methods. However, they are a direct application of time value of money concepts. They are not unreasonable questions. You should also be able to reason through implications if a case clearly favors one policy over another, such as lower premium payment and higher dividend payment, or a lower index value.

To illustrate the issues, assume a 25-year time horizon till death and a 5% discount rate on a \$100,000 insurance policy.

- Policy XX has annual beginning of year premiums of \$2,000 and an assumed annual end of year dividend (return of premium) of \$500. Terminal 25 year cash value projected (by the insurance company) to be \$25,000.

- Policy YY has annual beginning of year premiums of \$2,200 and an assumed annual end of year dividend (increase in cash value) of \$550. Terminal 25 year cash value projected (by the insurance company) to be \$27,500.



PROFESSOR'S NOTE

Be careful with the following calculations. Some steps require use of the **ordinary annuity (payments at end of period)** settings for your calculator. Other steps require the **annuity due (payments at start of period)** setting. If you do not use the proper setting at each step, your answer will be wrong.

Most CFA calculations use ordinary annuity. I keep my calculator set on ordinary annuity and only reset it to annuity due if required for a specific calculation. Then I reset it back to ordinary annuity. Many calculators show a small note on the screen of “beg” or “end” to show the mode.

Net payment cost index assumes the individual dies at the end of the horizon and cash value is not considered. It is often used if the insurance is projected to be paid up at that point:

Step 1: Compute the FV of the premiums paid, an annuity due (premiums paid at start of year).

XX: 2,000 PMT, 5 i_p , 25 n, FV = 100,227

YY: 2,200 PMT, 5 i_p , 25 n, FV = 110,250

Step 2: Compute the FV of the dividends, an ordinary annuity (dividends at end of year).

XX: 500 PMT, 5 i_p , 25 n, FV = 23,864

YY: 550 PMT, 5 i_p , 25 n, FV = 26,250

Step 3: The 25-year FV cost of insurance is Step 1 – Step 2.

XX: $100,227 - 23,864 = 76,363$

YY: $110,250 - 26,250 = 84,000$

Step 4: Annuitize this FV difference for the annual cost. Use an annuity due to match the requirement to pay premiums at the start of the year.

XX: 76,363 FV, 5 i_p , 25 n, PMT = 1,524

YY: 84,000 FV, 5 i_p , 25 n, PMT = 1,676

Step 5: Divide by \$1,000 of insurance policy amount to index the annual cost (\$100,000 / \$1,000 = 100 units of insurance).

XX: $\$1,524 / 100 = \15.24 per \$1,000 of insurance per year.

YY: $\$1,676 / 100 = \16.76 per \$1,000 of insurance per year.

Net surrender cost index assumes the individual terminates the policy (insurance ceases) at the end of the horizon and the cash value is received. Step 1 and Step 2 are the same. Step 3 will be different and have consequences for Step 4 and Step 5.

Step 1: Compute the FV of the premiums paid, an annuity due (premiums paid at start of year).

XX: 2,000 PMT, 5 i_p , 25 n, FV = 100,227

YY: 2,200 PMT, 5 i_p , 25 n, FV = 110,250

Step 2: Compute the FV of the dividends, an ordinary annuity (dividends at end of year).

XX: 500 PMT, 5 i_p , 25 n, FV = 23,864

YY: 550 PMT, 5 i_p , 25 n, FV = 26,250

Step 3: The 25-year FV cost of insurance is Step 1 – Step 2 less the projected cash value.

XX: $100,227 - 23,864 - 25,000 = 51,363$

YY: $110,250 - 26,250 - 27,500 = 56,500$

Step 4: Annuitize this FV difference for the annual cost. Use an annuity due to match the requirement to pay premiums at start of year.

XX: 51,363 FV, 5 i_p , 25 n, PMT = 1,025

YY: 56,500 FV, 5 i_p , 25 n, PMT = 1,127

Step 5: Divide by \$1,000 of insurance policy amount to index the annual cost (\$100,000 / \$1,000 = 100 units of insurance).

XX: $\$1,025 / 100 = \10.25 per \$1,000 of insurance per year.

YY: $\$1,127 / 100 = \11.27 per \$1,000 of insurance per year.



PROFESSOR'S NOTE

Many insurance regulators require companies to provide such standardize cost comparisons. Even then, the estimate of true cost depends on the assumptions. Of course, if you can precisely plan when you will die, this would be easier, but that's not a very practical solution.

Estimating the amount of insurance needed is another task. The starting point is estimating the remaining HC (PV of future earnings) of the insured plus expenses associated with the death and the PV of any other legacy goals (financial objectives that would have been met in the absence of premature death). The need may be lower as only expenses of the survivors, not the insured, are relevant.

Other Types of Insurance:

- **Disability income insurance** provides partial replacement of the insured's job income if the job is lost.
- **Property insurance** provides compensation for losses in value of real property. **Homeowners insurance** covers the home, and **automobile insurance** covers the car.
- **Health and medical insurance** covers health care expense.
- **Liability insurance** covers losses if the insured is found legally responsible for damages to another.



MODULE QUIZ 23.3

To best evaluate your performance, enter your quiz answers online.

1. The volatility of human capital and the demand for life insurance are:
 - A. uncorrelated.
 - B. positively correlated.
 - C. negatively correlated.
2. Which of the following statements regarding the pricing of life insurance policies is *most accurate*?
 - A. Mortality tables are built to reflect past experiences of mortality.
 - B. For a level payment five-year term policy, the level premium should be higher than the year 5 premium for an annual term policy.
 - C. Based on the assumed mortality rates, the insurance company estimates the net premiums to charge for insurance based on the assumed rate of return on investing the premiums.

3. Consider the following policy:

Insurance amount	=	\$250,000
Annual premium	=	\$4,850
Expected annual dividend	=	\$1,190
Time to maturity	=	30 years
Expected surrender value	=	\$70,000

Based on a discount rate of 8%, the net surrender cost index per 1,000 of insurance is *closest* to:

- A. \$12.70.
- B. \$13.10.
- C. \$13.80.

MODULE 23.4: ANNUITIES



Video covering this content is available online.

A basic annuity is a one-time premium payout in exchange for fixed payouts received for the life of the annuitant. The initial premium is the investment. When the annuity ends, the payouts cease. The initial investment is not returned at the end. The overly simple analogy is to a level payout amortizing mortgage, the payouts are interest and a return of principal. The complication in an annuity is how long the insured's life will last. Basic terminology includes:

- The **insurer** collects the premium and makes the future payouts. (The insurer is often an insurance company, the company.)
- The **annuitant** receives the **annuity payouts** in the future.

- The contract **owner** pays the premium to purchase the annuity and is usually the annuitant.
- The **beneficiary** receives any remaining value of the contract at death of the annuitant. In many cases, there is no beneficiary as payouts cease at death of the annuitant.
- The **premium**, which is normally paid once at purchase, could also be referred to as the value of the contract. **The premium paid to the company is the price of the annuity.** However, the convention is to keep the premium constant and adjust the stated annual payout. This means that a **lower/higher quoted payout to the annuitant is equivalent to a higher/lower price for the annuity.**

LOS 23.h: Discuss the use of annuities in personal financial planning.

CFA® Program Curriculum, Volume 4, page 408

Annuities are the economic opposite of life insurance: for life insurance, pay an annual premium and receive one payoff at death to insure against premature death; for annuities, pay once and receive payouts back for life to insure against longevity risk. Both products spread the risk of when any one individual will die across a large pool of individuals.

Annuities take many forms. A DB pension plan from a private company or government that pays for the life of the retiree is a form of annuity. Annuities can also be purchased and used to supplement or replace DB plan payouts. While the potential permutations and features are not limited, annuities can generally be classified as deferred versus immediate and fixed versus variable. Usually, the annuity is illiquid once purchased, though it is possible there can be provisions to liquidate early or sell the future payout stream to a third party.

In a **deferred annuity**, the annual receipts start at a deferred future date. **Deferred variable annuities** are common and allow the owner to select from a list of investment options. Higher/lower investment returns will increase/decrease the future payouts to be received. While often compared to mutual funds, the investment choices are more limited and expenses are high. The annuity can also include an insurance feature with a guarantee of some minimum payouts received back. Otherwise, the payouts would just cease at death of the recipient. The investor may also be able to cash out the value and terminate the annuity at a future date (subject to a surrender charge that reduces what they receive). Unless the individual pays for additional features, the variable annuity does not guarantee any minimum future payouts.

Deferred fixed annuities pay a fixed benefit for life that starts at a defined future date. The longer the delay between initial premium paid and start of payouts received, all else the same, the lower the cost of the annuity, as the company can invest and increase the funds available before making payouts on the annuity.

An **advanced life deferred annuity** is a relatively lower cost way to hedge the longevity risk of the annuitants outliving their other assets. Like most fixed and variable annuities, they require an immediate premium payout at purchase. Like deferred fixed annuities, the payouts are fixed, but the delay period before they start is long, often age 80 or 85 for the annuitant. The low premium reflects three factors. First, the long delay before payouts begin allows the company a longer period to invest and grow the premium's value. Second, the period of payouts will be shorter as the life expectancy of the older annuitant

will be shorter when payouts do begin. Third, a greater proportion of the annuitants will die before they receive any payouts.

Immediate variable annuities start payouts immediately, but the amount of the future payouts is indexed to the performance of some reference asset, such as a stock index. As the reference asset increases/decreases, the payouts increase/decrease. **Immediate fixed annuities** begin payout immediately and the payout amount does not change.

The features of the annuity and the annuitant's status will affect the payout. Typical features include:

- Life annuity with payouts for the life of the annuitant.
- Period certain annuity with payouts for a specified time period.
- Life annuity and period certain with payouts for the longer of the two periods.
 - Life annuity with refund is similar in concept but specifies a refund amount if a specified minimum payout amount has not been received before death of the annuitant.
- Joint life annuity specifies payout continues as long as at least one of the annuitants is alive.

Consider an initial \$100,000 investment in (premium paid for) an annuity.

- A 60-year-old female might receive 5,900 per year for life on an immediate fixed annuity, while a 60-year-old male might receive 6,300. The higher payout for the male reflects the statistical probability he will not live as long, and total payouts made by the company will be less.
- Annual payouts for an 80-year-old female or male will be higher, say 14,300 and 15,200 respectively. This reflects that their remaining life expectancy is shorter, reducing the number of payouts the insurance company is likely to make.
- A rider specifying payouts be made for at least 10 years reduces the annual payout, reflecting higher cost to the insurance company. It no longer benefits from cessation of payouts to annuitants that live less than 10 years.
- A joint life provision that payouts continue as long as either member of a couple is alive will lower the annual payout on any of the previous annuities. Statistically, this increases the total number of payouts as the company pays as long as at least one member is alive.
- Adding a, or increasing the deferral period until start of payouts would increase the annual payout, as the company can keep the premium invested longer and it reduces the number of payouts expected to be made.
- Generally, in any of the previous policies, the initial annual payout on a variable annuity will be lower than a fixed annuity, but the expected total payout amount can be higher for the variable annuity based on the performance of the reference asset. Of course, there is no guarantee of this; it depends on the performance of the reference asset.



PROFESSOR'S NOTE

It should be occurring to you that the number and combination of features on insurance products is infinite. Why would that surprise you? Think product proliferation. The companies have every incentive to offer a vast menu of options to attract customers. Do not imagine the CFA material can produce a comprehensive analysis model. It does not exist. That does not mean a question cannot be written that can be solved by applying the basic

economic and time value of money concepts being discussed; just think the case facts through logically.

LOS 23.i: Discuss the relative advantages and disadvantages of fixed and variable annuities.

CFA® Program Curriculum, Volume 4, page 412

The **volatility** of future benefits is obviously different. Lower risk investors may prefer the certainty of fixed payouts, and higher risk investors may prefer the potential for increasing variable payouts.

Flexibility often differs. Fixed annuities are generally irrevocable and payouts cannot be changed. In variable annuities the future value of the annuity and payouts are linked to the performance of a reference asset. Variable annuities are more likely to allow withdrawal of the funds at subsequent market value (after surrender fees for withdrawal).

Future market expectations will affect the choice. Payouts on a fixed annuity are largely determined by initial bond market interest rates. If rates are expected to increase, delay in purchase can lead to higher payouts on annuities purchased later.

However, the choice is not so simple and requires a consideration of **mortality credits**. Some individuals will die before, and some after, their expected lifespan. Annuitants who die earlier collect fewer payouts, effectively subsidizing those who die later. That is why insurance is called risk sharing or transfer. This concept is called mortality credits. All other factors the same, mortality credits make annuities less costly to purchase at a younger age. (Think of it as the annuitants who live longer earn a mortality credit paid by those who do not live as long and collect fewer payouts). However, the effect of mortality credits is difficult to see directly because other factors are also often changing.

As a simple example, consider a 60 year old who pays \$100,000 for a lifetime annual payout of \$5,000. Waiting to age 65 for the purchase might produce an annual payout of \$6,000. Waiting appears to be economically beneficial, but this is deceptive. If market conditions are unchanged, the payout amount is reduced by mortality credits but increased by the fact the older individual who waits to purchase will statistically receive fewer payouts.

An easier way to see the effect of the mortality credit is to look at a deferred annuity for the 60 year old, which would start payouts at age 65. The initial payout could be \$6,450. This is clearly better than if the individual waits until age 65 to purchase and immediately start receiving \$6,000. It is the same individual, so the total payouts to be made are the same. Even here, two factors are at work. The annual payout amount, if purchased at age 60 to start payouts at age 65, is higher because the company can invest the premium for 5 years before making payouts at 65, and it is also higher because some of the annuitants will not live to age 65 to collect anything. Those who die earlier have subsidized and paid a mortality credit to those who live longer than age 65 and collect payouts.



PROFESSOR'S NOTE

While the effect of mortality credits can be difficult to see directly, the concept is fundamental to insurance risk sharing and pricing.

- Just remember that for life insurance the ultimate cost is lower if you die and the beneficiaries collect the one-time fixed payout sooner, while those who live longer

end up paying more for the same payout. Admittedly, who wants to die sooner! (Be careful that your beneficiaries want you around for a long time.)

- For annuities, the issue reverses; annuitants who live longer end up collecting more and are subsidized by those who die sooner and collect less.

While this is a bit morbid, rest assured the insurance company is not stupid and fully understands all the implications of mortality tables, future payouts, and how they affect insurance pricing. The industry invented mortality tables.

Market expectations also affect variable annuity versus fixed annuity payouts because variable annuities shift risk to the annuitant from the company. The payout is based on the future performance of the risky reference asset. The annuitant earns both a mortality credit and a risk premium. The net effect is the total expected value of the payouts is higher, reflecting the higher expected return on the reference asset (although the initial annual payout is generally lower). The variable annuity is also more likely to allow cashing out, but at a value linked to the reference asset. There is a downside; fees for variable annuities tend to be higher. Variable annuities are also more complex and difficult to analyze. This difficulty tends to reduce price competition and further increase the price of variable annuities (i.e., lowers the annual payout received for premium invested compared to fixed annuities).

Inflation is also a factor. Variable annuities that link payout to an appreciating asset like the stock market are more likely to provide long-term inflation protection. Conventional fixed annuities that pay a constant nominal amount offer no inflation protection. (In contrast many DB plan benefits are indexed to inflation.) A fixed annuity with a rider to increase payments with inflation can be purchased, but at a higher cost. Alternatively, fixed annuities can be designed with payments that increase by predetermined amounts for some inflation protection. The prespecified increases may or may not match actual inflation.

Taxes are a factor, but they are complex and vary by jurisdiction. Consult a qualified advisor before making decisions. Typically, increases in value of an insurance product are not taxed before payouts. At payout, tax may or may not be due on the increase in value.

PROFESSOR'S NOTE

This tax comment is more cautionary than comments in some other Level III insurance readings. The bottom line in all the readings is taxation of insurance products is complex, you need more than the CFA curriculum will provide, and there can be some tax advantages. Do not send emails saying the statements in the different readings are not identical. The bottom line is consistent among readings.

The alternative to purchase of an annuity is to **self-insure** longevity risk. In other words, invest in financial assets and set a withdrawal amount that lasts to an assumed life expectancy. The life expectancy should be high because the alternative is running out of money. The decision is complex because the annuity payment reflects three components:

- Return of the principal (premium).
- Interest on the principal.
- Mortality credits as annuitants who die sooner are subsidizing (receiving fewer payouts) the annuitants who live longer (receive more payouts).

Self-insurance can earn the first two, but not the third. This favors use of the annuity. However, use of annuities reduces aggregate wealth of the users as the insurance companies invest rather conservatively and must cover costs plus profit (which is just

the cost of invested capital). The decision becomes how much risk for the retiree to take versus cost. Factors that favor use of annuities rather than self-insurance include:

- A longer than average life expectancy.
- A desire for lifetime income.
- Less desire to leave an estate for the benefit of others.
- Conservative investors (high risk aversion).
- An absence of other guaranteed income sources such as pensions.



MODULE QUIZ 23.4

To best evaluate your performance, enter your quiz answers online.

1. Insured individuals who live longer than the statistical average are *most likely* to earn a positive (benefit from the) mortality credit with:
 - A. life insurance.
 - B. an annuity.
 - C. both life insurance and an annuity.
2. In which of the following situations would an individual be *most likely* to purchase a variable rather than a fixed annuity?
 - A. They need a more certain income stream.
 - B. They want to avoid higher fees.
 - C. They want the flexibility to redeem the annuity in the future.

MODULE 23.5: COMPREHENSIVE EXAMPLE AND REVIEW



Video covering this content is available online.

LOS 23.j: Analyze and evaluate an insurance program.

CFA® Program Curriculum, Volume 4, page 417



PROFESSOR'S NOTE

This LOS is typical of Level III. A question can describe facts and ask for an answer that may draw on any of the relevant material covered in the readings. Don't panic, the case facts and taught material will provide the answer; just keep your cool and think it through.

Risk management involves multiple techniques. Some risks can be avoided (risk avoidance) (e.g., don't own expensive cars that are costly to repair). Avoiding the risk is a pure form of loss control. Loss prevention involves reducing the probability of the loss (e.g., keep the car in secure storage). Loss reduction involves taking actions to reduce the amount of the loss [e.g., installing fire suppression devices (the fire may still occur, but the likely damages are reduced)]. Risk management also involves risk transfer (buying insurance) and risk retention (self-insurance).

One approach to risk management involves categorizing the severity and frequency of the loss. Severity refers to the size of the loss in relationship to the financial resources of the individual. A \$50,000 loss could be trivial to some but devastating to others. Likewise, if the loss is infrequent, it is less burdensome than if it occurs frequently. The matrix classification in Figure 23.4 can indicate the appropriate risk management technique to use.

Figure 23.4: Risk Management Decision Matrix

Characteristic of the Loss	Occurs Regularly	Infrequent
Very severe	Risk avoidance	Risk transfer
Not severe	Risk reduction	Risk retention

EXAMPLE: Analyze an individual's insurance program

Case facts:

- A couple in their early 40s has 3 dependent children.
- The husband earns \$200,000 annually and is employed in a low risk profession. The employer provides life insurance equal to 2 years of salary. The health insurance plan is generous and covers the family. The employer provides short-term disability insurance to cover 75% of the earnings of the husband, but the benefits last for only 3 months.
- The wife works part time and earns \$10,000. Her primary responsibility is care of the children and home. She expects to return to the workforce in the next few years. Her job skills are current, in high demand, and highly compensated.
- Their home was purchased a few years ago at the bottom of a severe real estate collapse and has appreciated 150%. The original loan balance was 90% of purchase price has been only slightly reduced. The couple has been collecting valuable antiques to furnish the home. Property insurance on the home and contents has not been changed since the purchase.
- The couple has a \$2,000,000 investment portfolio. A wealthy friend of the couple recently suffered a severe financial loss due to her negligence when she caused a car accident. Her auto insurance only covered liability claims up to \$50,000. The couple has a similar auto policy.
- The wife's mother died recently and her 65-year-old father is still alive. The father is in average health and has a large, secure, inflation indexed pension. The father's parents and both sets of grandparents died at relatively young ages.

A. **Discuss** the insurance needs of the couple with regard to life, health, long-term disability, auto, other property, and liability insurance.

B. **Comment** on factors that may increase and decrease their ability to self-insure.

C. **Discuss** two reasons why the wife's father is likely a poor candidate for purchase of an advanced life deferred annuity that would begin payment at age 85.

Answer:

A.

- It is unlikely life insurance equal to 2 years of the husband's salary would cover the family's loss in value if he dies. He needs more life insurance. While the wife's current income is low, her HC is high and she provides substantial value to the family now. Her services would be costly to replace. Some life insurance is needed on her to protect the family's standard of living.
- Employer health insurance is good and covers the family.
- Long-term disability is needed as the family is at risk if the husband cannot work for an extended period of time. This is mitigated by the potential for the wife to return to work.
- Auto insurance and or liability insurance need to be increased. The couple has substantial assets that are at risk if they were responsible for damages to another.
- Property insurance on the home and contents needs to be increased to match their current value.

B. They have substantial assets that increase their ability to absorb losses and self-insure. It is also likely they have substantial explicit liabilities in the form of a mortgage and implicit liabilities in the need to care for the children. These decrease their net wealth and ability to self-insure.

C.

- With a family history of below average life expectancy, the cost versus benefit is relatively low as the father may end up collecting no or only a small number of

payments.

- With a large, secure, inflation indexed pension, the father will have less need for increased additional payments from an annuity starting in the future.

Human Capital and the Implications for Asset Allocation

LOS 23.k: Discuss how asset allocation policy may be influenced by the risk characteristics of human capital.

CFA® Program Curriculum, Volume 4, page 426

Asset allocation should consider the investor's total economic wealth, FC and HC. The characteristics of the HC are relatively hard to change, so the adjustment is likely to be in the FC. The nature of the HC may affect both the overall risk taken in the FC, and the assets and asset classes selected. For example, an individual employed in a high-risk profession would, all else the same, choose lower risk FC. If the HC is positively correlated with the stock market, then it will be best to select asset classes other than equity for any risky assets that are used. Of course, the individual should try and avoid FC tied directly to her employer.

EXAMPLE: Asset allocation

Sally is an MBA with high-risk HC that is 90% stock like. Her sister, Hellen, is a tenured college professor with HC that is 10% stock like. Based on these and all other considerations, they have both selected a 70/30 asset allocation (stock to bond) of total wealth. Sally has HC of 1.9 million and FC of 2.5 million. Hellen's HC and FC are 0.8 and 1.1 million respectively. Based only on this information, **calculate** the target equity amount that each would hold in her FC.

Sally:

- Total desired equity amount = $(1.9 + 2.5) \times 0.7 = 3.08$ million.
- Equity exposure from HC = $1.9 \times 0.9 = 1.71$ million.
- For her 2.5 million FC, she should allocate 1.37 million to equity.

Hellen:

- Total desired equity amount = $(0.8 + 1.1) \times 0.7 = 1.33$ million.
- Equity exposure from HC = $0.8 \times 0.1 = 0.08$ million.
- For her 1.1 million FC, she would have to allocate 1.25 million to equity to reach her total wealth allocation goal. Most likely she will allocate all 1.1 million and be somewhat below her desired total allocation goal for equity.

The characteristics of HC can be complex. For example:

- For a couple, the HC of each member is not likely to be perfectly correlated (+1) with the other, making the couple's HC in aggregate less risky. Likewise, if both are employed, the couple's HC is less risky than if the same amount were earned but only by one member of the couple.
- If one member of the couple has less geographically mobile career skills, the couple's HC is at risk if the other member must move.
- If one member of the couple is not working but could return to work if needed, that lowers the risk of the couple's HC.

- Generally, HC is less risky than many forms of FC, and, all else the same, the asset allocation in FC is tilted toward riskier assets.

LOS 23.I: Recommend and justify appropriate strategies for asset allocation and risk reduction when given an investor profile of key inputs.

CFA® Program Curriculum, Volume 4, page 429



PROFESSOR'S NOTE

Another cumulative LOS that can lead to a question and facts that draw on any of the relevant material covered in the readings.

The reading terms idiosyncratic and systematic risk are analogous to more general terms in portfolio theory. Idiosyncratic is specific or diversifiable risk that can be reduced through diversification or use of insurance products. Insurance is just a pooling and diversification of risk through the insured group. For example, life insurance pools the risk of those who die sooner and later than expected. Systematic risk is market risk for which the holder should be compensated. More/less risk tolerant individuals may choose more/less systematic risk.

Risk management strategies include:

- Determining and taking the appropriate amount of systematic (market) risk through an asset allocation of total wealth.
- Reducing where appropriate idiosyncratic (non-market) risks:
 - Through asset diversification.
 - Use of insurance to transfer risks.

For example:

- A young MBA with large debts and high expenses may skip saving for retirement in the early years of her career. If there is any need for life insurance, it should be low-cost, temporary insurance. Security portfolio diversification is relatively unimportant while HC dominates FC.
- A financially well off couple nearing retirement must be more concerned with FC diversification. Outliving the FC becomes of greater concern and longevity risk can be hedged with annuities. HC shrinks and the need for life and disability insurance diminishes or ceases. Health, long-term care, and liability insurance are more important priorities. The more affluent may choose to self-insure as long as it does not imperil standard of living.

Conclusion

The risk management process for individuals is complex and must consider risk and return to total wealth. At different stages of life, the relative importance of and risks to human and financial capital will shift. Market risks to FC can be largely addressed with standard portfolio tools. Adding insurance tools provides more comprehensive risk management of HC and total wealth.



MODULE QUIZ 23.5

To best evaluate your performance, enter your quiz answers online.

1. An individual should *most likely* purchase insurance for a risk that:
 - A. poses high standard of living risk and is infrequent.

- B. poses high standard of living risk and is frequent.
 - C. is smaller in amount and infrequent.
2. An individual in a high-risk job will *most likely*:
- A. increase their allocation to industries that are highly correlated with their wage income.
 - B. increase their allocation to risk-free assets.
 - C. reduce their savings.
3. The need for retirement savings is *most likely* higher for:
- A. a recent college graduate with very young children.
 - B. a young couple who has recently received a large inheritance.
 - C. an older couple in their peak earnings years but employed in a declining industry.

KEY CONCEPTS

LOS 23.a

Total wealth is composed of both human capital and financial capital. Human capital (HC) is the discounted present value of expected future labor income. Estimation includes the future amount, the probability the individual will be alive to earn it, and a discount rate related to the riskiness of the amounts. Financial capital (FC) is the sum of all the other assets of an individual.

LOS 23.b

Net wealth is the sum of the individual's FC and HC less any liabilities owed by the individual. A typical individual might start an employment career with high HC and low FC. As the individual's remaining work career decreases with age, HC generally declines over time while FC increases as the individual saves and invests.

LOS 23.c

Generally, HC is highest in early career and declines until retirement. FC is likely to peak at retirement. The life stages are Education, Early Career, Career Development, Peak Accumulation, Preretirement, Early Retirement, and Late Retirement.

In all stages, there can be unpredicted needs for health care and/or to care for family.

LOS 23.d

The economic (holistic) balance sheet extends the traditional balance sheet assets to include HC. Liabilities are extended to include consumption and bequest goals. This more complete economic view allows better planning of resource consumption to meet remaining lifetime goals.

LOS 23.e

- Earnings risk. Job loss and other career disruptions can reduce HC and may even lead to the need to consume FC prematurely.
- Premature death risk. Can be a serious risk early in the career when substantial HC could be lost and cause unexpected expenses that consume limited FC.
- Longevity risk. Individuals who live too long are at risk of outliving their FC.
- Property risk. Loss in value of physical property (FC).
- Liability risk. If legally responsible for damages, leading to a reduction in FC.

- Health risk. Direct loss of FC to pay illness or injury related expenses and may reduce HC through diminished or inability to work.

LOS 23.f

- Life insurance protects the survivors from the adverse financial consequences of the insured's premature death.
- Disability income insurance provides partial replacement of the insured's job income if the job is lost.
- Property insurance provides compensation for losses in value of real property. Homeowners insurance covers the home and automobile insurance covers the car.
- Health and medical insurance covers health care expense.
- Liability insurance covers losses if the insured is found legally responsible for damages to another.

LOS 23.g

Temporary life insurance is for a set period of time. **Permanent insurance** builds up value sufficient to pay for insuring the remaining lifetime of the insured. Pricing reflects **mortality estimates** that determine how many in the group are expected to die during the insurance period and allow calculating the **net premium** to charge to make those payouts. **Load** is an estimate of company expenses and profit that is added to determine the **gross premium** charged for the insurance.

LOS 23.h

Annuities are the economic opposite of life insurance, pay once and receive payouts back for remaining life to insure against longevity risk. **Immediate annuities** begin payout immediately and **deferred** at a future time. **Fixed annuity** payouts do not change in amount, and **variable** payouts are linked to change in a reference asset.

LOS 23.i

Fixed versus variable annuities:

- Fixed provide a known future payout, while variable have a better chance of keeping up with inflation.
- Fixed will be priced to reflect bond market rates at the time of purchase, while variable will perform in line with changes in the reference asset and are more likely to allow withdrawals.
- Fees for variable are generally higher.
- Both may be subject to some taxes.
- Both earn a mortality credit:
 - For life insurance, the ultimate cost is lower if you die and the one-time fixed payout occurs sooner, while those who live longer end up paying more for the same payout.
 - For annuities, the issue reverses; annuitants who live longer end up collecting more and are subsidized by those who die sooner and collect less.

LOS 23.j

A cumulative LOS, expect questions that draw on the entire reading.

Characteristic of the loss:	Occurs regularly	Infrequent
Very severe	Risk avoidance	Risk transfer
Not severe	Risk reduction	Risk retention

LOS 23.k

Asset allocation should consider the investor's total economic wealth, FC and HC. For example, an individual employed in a high-risk profession would, all else the same, choose lower risk FC. If the HC is positively correlated with the stock market, then it will be best to select asset classes other than equity for any risky assets that are used. Of course, the individual should try and avoid FC tied directly to her employer.

LOS 23.l

A cumulative LOS, expect questions that draw on the entire reading.

- Determine and take the appropriate amount of systematic (market) risk through an asset allocation of total wealth.
- Reduce where appropriate idiosyncratic (non-market) risks:
 - Through asset diversification.
 - Use of insurance to transfer risks.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 23.1, 23.2

1. **C** While DB plan benefits have elements of both FC and HC, they are best categorized as FC. They are also part of total wealth, making C the best answer. (Module 23.1, LOS 23.a)
2. **A** The very wealthy may spend less than the total return earned on their assets and see FC increase over time. All others are more likely to spend more than their return and see FC decline. The value of both pensions and annuities is the PV of expected future payments and so declines with age and the reduction in number of future payments. (Module 23.1, LOS 23.a)
3. **B** HC and the need for life insurance is likely at its peak in the early career stage, followed by the career development stage when the expected work career and HC remain high. (Module 23.1, LOS 23.c)
4. **C** Making changes based only on the traditional balance sheet analysis would be premature because it fails to consider all economic variables affecting the individual. The holistic balance sheet with all variables included could show positive net wealth. On the traditional balance sheet, negative balance may mean little. Individuals who are early in their career with college debt could have negative net worth. Even if both balance sheets show a negative balance, it does not mean immediate changes must be made, only that long-term plans may need revision. (Module 23.1, LOS 23.d)
5. **A** While it is true they may be wealthy and may also need the other two, the direct need is for property insurance. (Module 23.2, LOS 23.e)

6. **B** The first pension receipt is offset by a liability, a planned expenditure, so it has zero value in our calculations.

The long (and unrealistic under exam conditions) way to solve this question is to set up a spreadsheet to project the payments at end of year 1 to 10 with the first payment on the spreadsheet being 5% higher than the 25,000, and all subsequent payments increasing by 5% annually. Each FV payment would be discounted to PV at $3\% + 8\% = 11\%$. The more realistic way to solve the question is to realize the starting 25,000 is growing 5% each year and is then discounted at 11%. This can be reduced to a net discount rate (including the effect of growth) each year of $[1 + (0.03 + 0.08)] / 1.05 - 1 = 5.7\%$.

The question is then an ordinary annuity calculation of 10 payments: 10 n, 25,000 PMT, 5.7 ip, PV = 186,646.

Variations on this calculation such as $[(1.03)(1.08)] / 1.05 - 1$ or $3 + 8 - 5$ are also likely to be acceptable but less consistent with the CFA text. (Module 23.1, LOS 23.d)

Module Quiz 23.3

1. **C** Human capital volatility and demand for life insurance are negatively correlated. Life insurance acts as a substitute for human capital, so its face value depends on the perceived value of the human capital it replaces. If the human capital has high volatility (equity-like), a higher discount rate is used to estimate its present value. Thus, human capital with high volatility has a smaller present value than human capital with low volatility. (LOS 23.g)
2. **C** Based on the assumed mortality rates, the insurance company estimates the net premiums to charge for insurance based on an assumed discount rate. The discount rate is also the assumed rate of return on investing the premiums. At that discount rate, the premiums must be sufficient such that the present value of the premiums and payouts are equal so that the premiums are sufficient to pay future benefits. The level premium will be higher than the year 1 and *lower* than the year 5 premium for annual term. The premium is conceptually a weighted average of five sequential one-year term premiums. Mortality tables are built to reflect both past experiences *and future projections* of mortality. (LOS 23.g)
3. **A** The CFA convention is premiums are paid at the start of the year as is the annuitized cost (annuity due) and dividends are received at the end of the year (ordinary annuity). (LOS 23.g)

$$FV_{\text{premiums}} = \$593,377.46 \text{ (annuity due: \$4,850 annual payment, 30 years, 8\%)}$$

$$FV_{\text{dividends}} = \$134,807.02 \text{ (ordinary annuity: \$1,190 annual payment, 30 years, 8\%)}$$

$$FV_{\text{net}} = \$388,570.44 \text{ (future value of premiums less dividends and surrender value)}$$

$$\text{Annual}_{\text{net}} = \$3,176.00 \text{ (annuity due payment: \$388,570.44 future value, 30 years, 8\%)}$$

$$\text{NSCI} = \$12.70 \text{ per \$1,000 per year (net annual cost divided by 250 [\$250,000 / \$1,000])}$$

Module Quiz 23.4

1. **B** With a long life, the individual will collect more payouts than the average annuitant and benefit (earning the positive mortality credit). In contrast, the payout on life insurance will be further in the future, and they are effectively subsidizing (earning a negative credit) those with a shorter life whose beneficiaries are paid the policy amount sooner. (LOS 23.i)
2. **C** Variable annuities are more likely to allow cashing out (at the market value with surrender fees). Fixed annuities have more certain income and generally lower fees but are generally not redeemable. (LOS 23.h)

Module Quiz 23.5

1. **A** This is the most likely situation to use insurance. It will be difficult to recover if the risk is realized, and because it is infrequent, the cost of insurance will be relatively lower. B is something to avoid, and C is a good case for self-insurance (risk retention). (LOS 23.j)
2. **B** Higher risk HC will, all else the same, reduce the allocation in FC to risky assets in favor of lower risk assets. The risky job makes savings more important and investing in assets with positive correlation to HC should generally be avoided in order to provide diversification within total wealth. (LOS 23.k)
3. **C** This is typically the period of maximum savings for retirement, and the risk of early job loss makes this even more important. While it is always good to start saving for retirement, the other two likely have more immediate needs. Answer choice A probably needs low-cost term life insurance and liquidity. B is likely in good financial shape and could benefit from advice on what to do with the inheritance. B can certainly consider retirement savings, but C has the greatest need. (LOS 23.l)

The following is a review of the Portfolio Management for Institutional Investors principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #24.

READING 24: PORTFOLIO MANAGEMENT FOR INSTITUTIONAL INVESTORS

Study Session 12

EXAM FOCUS

This reading addresses the investment policy statement (IPS) of the major types of institutional investors. As seen in the reading on individual investors, the IPS contains a formal statement of investment objectives (i.e., return and risk tolerance) and constraints applying to the client. The exam is likely to present a case study with one or more of these types of institutional clients, and you will be asked to prepare or evaluate parts of the IPS, effectively advising the institutional client on how to structure their investment portfolio. It is crucial that you approach this material from this perspective. The key to scoring well on this portion of the exam is to understand what the various institutions are trying to achieve with their investment portfolios and which risk considerations and constraints apply when meeting these goals.

MODULE 24.1: OVERVIEW OF INSTITUTIONAL INVESTORS



Video covering this content is available online.

Common Characteristics

LOS 24.a: Discuss common characteristics of institutional investors as a group.

CFA[®] Program Curriculum, Volume 5, page 6

Types of institutional investors considered in this reading include defined benefit and defined contribution pension plans, sovereign wealth funds (SWFs), university endowments, private foundations, banks, and insurance companies. Before discussing the details of the IPS for each type of institution, we note the following five common characteristics that cause institutional investors to differ from individual investors:

1. **Scale (size).** Institutions tend to be larger than individual investors. The largest institutions may be too large for investments or managers with low capacity, such as small-cap equity or venture capital. These large institutions may therefore choose to directly access investments and manage them in-house. Smaller institutions may have issues diversifying across asset classes that have high minimum investment sizes (e.g., private equity or real estate). They may also face issues with hiring skilled investment professionals and instead choose to outsource to external managers and consultants.
2. **Long-term investment horizon.** With some exceptions, institutional investors tend to have longer time horizons than individual investors because institutional

investors are driven by the need to meet specific liabilities that are relatively low.

3. **Regulatory framework.** Institutions are subject to different legal, regulatory, accounting, and tax rules than individual investors with the differences among institutional investors based on national jurisdiction. Regulations have been tightened since the 2007–2009 global financial crisis in an attempt to lower leverage, increase centralized clearing, and improve reporting transparency.
4. **Governance framework.** Institutions typically operate under a formal governance structure, whereas governance structures for individuals tend to be less formal. Governance structures are typically composed of a *board of directors* and an *investment committee*, which may be a subcommittee of the board. The board often sets the long-term strategic asset allocation of the institution, with the board and/or investment committee establishing the IPS and monitoring investment performance. The investment committee oversees investment policy. Investment strategy is implemented by an investment office typically headed by a chief investment officer; the investment management takes place either in-house by internal investment staff or is outsourced to external asset managers.
5. **Principal-agent issues.** The principal-agent conflict occurs when a principal (i.e., the owner of assets) appoints an agent to act on their behalf and the agent's interests are not aligned with the principal's interests. For institutions, this conflict occurs internally through the appointment of the investment committee and investment staff and occurs externally through the use of outsourced investment managers. The classic example of an external principle-agent conflict is a high management fee paid to third-party investment managers regardless of performance.

Investment Policy Statement

LOS 24.b: Discuss investment policy of institutional investors.

CFA® Program Curriculum, Volume 5, page 11

The IPS should include:

- The institution's *mission* and *investment objectives* (i.e., return and risk tolerance).
- Discussion of the *investment horizon* and *liabilities* that need to be paid by the institution.
- *External constraints* that affect the asset allocation (legal, regulatory, tax, and accounting).
- An asset allocation policy (i.e., portfolio weights) with ranges and asset class benchmarks.
- A rebalancing policy.
- Reporting requirements.

The IPS should be reviewed annually, and revisions should be made when necessary due to material changes in investor circumstances and/or market environment.

While each institution has unique features, four models have evolved as different general approaches to asset allocation. Three of these models are named after approaches used by Norway's sovereign wealth fund, the Yale University endowment, and the Canada

Pension Plan, while the fourth model is liability driven. Details of the four models are outlined in Figure 24.1.

Figure 24.1: General Asset Allocation Approaches

Model	Description
Norway's sovereign wealth fund	<p><i>Asset allocation:</i></p> <ul style="list-style-type: none"> ■ Passively managed allocation to public equities and bonds (with traditional 60% equity/40% bonds base case allocation) ■ Little or no exposure to alternative assets ■ Tight tracking error limits <p><i>Advantages:</i></p> <ul style="list-style-type: none"> ■ Low costs and fees ■ Easy for board to comprehend <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> ■ No opportunity for outperformance of markets
Yale University endowment	<p><i>Asset allocation:</i></p> <ul style="list-style-type: none"> ■ High allocation to alternatives ■ Significant active management ■ Externally managed assets <p><i>Advantages:</i></p> <ul style="list-style-type: none"> ■ Potential for outperformance of markets <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> ■ Difficult for small institutions without expertise in alternatives ■ May also be difficult for large managers due to capacity issues of external managers ■ High fees/costs
Canada Pension Plan	<p><i>Asset allocation:</i></p> <ul style="list-style-type: none"> ■ High allocation to alternatives ■ Significant active management ■ Internally managed assets ■ Uses a reference portfolio of passive public assets as benchmark that can be easily understood/communicated <p><i>Advantages:</i></p> <ul style="list-style-type: none"> ■ Potential for outperformance of markets and development of internal capabilities <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> ■ Potentially expensive and difficult to manage
Liability driven	<p><i>Asset allocation:</i></p> <ul style="list-style-type: none"> ■ Focus is on maximizing expected surplus (assets – liabilities) return and managing surplus volatility <p><i>Advantages:</i></p> <ul style="list-style-type: none"> ■ Explicitly recognizes liabilities as part of investment process <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> ■ Certain risks of liabilities (e.g., longevity) are difficult to hedge



PROFESSOR'S NOTE

The liability-driven investing (LDI) model is the same as the model discussed in detail in the asset allocation section of the curriculum.

MODULE QUIZ 24.1



To best evaluate your performance, enter your quiz answers online.

1. Eris Private Wealth, Inc., (EPW) provides investment advice to high-net-worth individuals. After a recent merger, EPW acquired some institutional clients. The board of EPW has asked the post-merger management team to prepare a report detailing the key differences between institutional clients and individual clients. The report makes the following two statements:

Statement 1: It is likely that the different scale of institutional clients versus individual clients will narrow the available investment universe.

Statement 2: The governance structure of institutional clients is likely to be more formal than the governance structure of the investment account of an individual client.

How many of the post-merger management team's statements are correct?

- A. Only one statement is correct.
 - B. Neither statement is correct.
 - C. Both statements are correct.
2. The board of the SJT Foundation has specified the following objectives:
 - Make an aggressive allocation to alternative investments in order to diversify and hedge against long-term inflation risk.
 - Outsource investment management to external managers due to the lack of experience by internal investment staff in investing in alternative investments.
 - Pursue actively managed strategies to generate long-term outperformance of benchmarks.

The investment approach *most likely* to meet these objectives is:

- A. the Canada Pension Plan model.
- B. the Yale University endowment model.
- C. the Norway sovereign wealth fund model.

LOS 24.c: Discuss the stakeholders in the portfolio, the liabilities, the investment time horizons, and the liquidity needs of different types of institutional investors.

LOS 24.d: Describe the focus of legal, regulatory, and tax constraints affecting different types of institutional investors.

LOS 24.f: Prepare the investment objectives section of an institutional investor's investment policy statement.

LOS 24.g: Evaluate the investment policy statement of an institutional investor.

LOS 24.h: Evaluate the investment portfolio of a private DB plan, sovereign wealth fund, university endowment, and private foundation.

CFA® Program Curriculum, Volume 5, pages 14, 23, 29

The remainder of this reading addresses the details of IPSs of different types of institutional investors. The general outline for each type of institution will be as follows:

- The main features/mission of the institution.
- The stakeholders (i.e., parties impacted by the success/failure of the institution).
- The key elements of the IPS, usually in the following order:
 - Liabilities and investment horizon.
 - Liquidity needs.

- External constraints.
- Investment objectives.
- Asset allocation.

MODULE 24.2: PENSION FUNDS



Video covering
this content is
available online.

Main Features/Mission

Pension funds are plans designed to save and invest in order to provide income for plan beneficiaries upon retirement. The entity that sets up the plan is referred to as the plan sponsor and is usually an employer. There are two major types of pension plans: (1) **defined benefit (DB)**, in which a plan sponsor defines the *benefit* that will be paid to beneficiaries upon retirement in the future and (2) **defined contribution (DC)**, in which *contributions* to plan assets today are defined, but there is no guarantee of ultimate benefits paid to beneficiaries.

While the exact nature of plans varies depending on jurisdiction, the main differences between DB and DC plans are displayed in Figure 24.2.

Figure 24.2: Defined Benefit vs. Defined Contribution

Feature	Defined Benefit	Defined Contribution
Benefit payments	Contractually defined (usually dependent on final salary) Creates a measurable liability for the plan sponsor	Depends of the performance of investments Once promised contributions have been met, there is no liability for the plan sponsor
Contributions	Primarily by employer (employee may contribute also)	Primarily by employee (employer may contribute also)
Investment decision-making	Pension fund (sponsor and investment staff)	Sponsor provides suite of available investment funds Employee decides level of investment and asset allocation
Investment risk	Faced by sponsor	Faced by beneficiary
Mortality/longevity risk	Pooled at the fund level—beneficiaries who live longer than expected are funded by those who die earlier than expected Risk of general increases in life expectancy faced by sponsor	Employee faces the longevity risk of outliving their own savings

Over recent decades, there has been a move from DB to DC plans driven by the plan sponsors' preference for lower financial risk and the fact that DC plans are portable (i.e., they can move with beneficiaries when they change jobs).

Hybrid plans also exist that exhibit features of both DB and DC plans. For example, a cash balance plan involves a sponsor defining contributions to assets, which are then pooled; the sponsor faces some of the investment risk, as per a DB plan.

We will now focus on DB plans and DC plans individually.

DB Pension Plan

Stakeholders

The following are stakeholders in a DB pension scheme:

- *Plan sponsors (employers)* must make contributions to plan assets. Poor investment performance will result in sponsors having to make extra contributions to an underfunded plan (i.e., when assets are lower than liabilities).
- *Plan beneficiaries (employees and retirees)* face the ultimate risk that an employer defaults on contributions to plan assets.
- *The investment staff, the investment committee, and/or the board* are directly impacted by the success or failure of the plan.
- *Governments* are stakeholders in that they provide tax incentives for employees to save for retirement, and taxpayers will ultimately face the costs of providing welfare for those that have failed to adequately save for retirement.
- *Shareholders* in the corporate employer are stakeholders since an underfunded plan will cause a balance sheet liability and lower income for the company. It will also lead to higher financial risk, which will likely increase share price volatility.

Liabilities and Investment Horizon

The liabilities of a DB pension plan are the present value of the future benefits promised to plan participants. Employees usually only qualify to receive these benefits after meeting certain requirements called *vesting* conditions—typically a required minimum number of years of service.

The funded status of the plan can be measured using the funded ratio, or vested benefit index:

$$\text{funded ratio} = \text{fair value of plan assets} / \text{PV of DB obligations}$$

The major factors affecting the size of the liability are summarized in Figure 24.3.

Figure 24.3: DB Pension Plan Liability Factors

Factor	Impact of Increase in Factor	Rationale
Service/tenure (years worked)	Increases liability	Benefits are usually linked directly to years of service by the employee.
Salary	Increases liability	Benefits are usually linked to final salary.
Longevity	Increases liability	Plan participants are paid benefits for every year they live in retirement. If they live longer in retirement, they will receive more years of benefits.
Employee turnover	Lowers liability	Higher employee turnover means fewer employees are likely to work the number of years of service required for vesting of benefits.
Additional/matching contributions	Increases liability	Additional/matching contributions usually increases the benefits promised to employees.
Expected investment return	Potentially lowers liability	In some cases, an increase in expected returns increases the discount rate used for liabilities, lowering liabilities.
Discount rate	Lowers liability	A higher discount rate will give a lower present value of benefits, hence a lower liability.

The plan beneficiaries can be split into *active lives* (those still employed and earning benefits) and *retired lives* (those receiving benefit payments). The higher the proportion of retired lives in the plan, the shorter the investment horizon of the plan, which lowers the risk tolerance of the plan. Plans that are frozen (i.e., closed to new participants) will also have shorter investment horizons due to the lack of new active lives joining the plan.

Risk Considerations

LOS 24.e: Evaluate risk considerations of private defined benefit (DB) pension plans in relation to 1) plan funded status, 2) sponsor financial strength, 3) interactions between the sponsor's business and the fund's investments, 4) plan design, and 5) workforce characteristics.

CFA® Program Curriculum, Volume 5, page 26

Key considerations that drive the risk tolerance of the DB pension plan are summarized in Figure 24.4.

Figure 24.4: DB Pension Plan Risk Considerations

Consideration	Rationale
Plan funded status	Higher funded status potentially increases risk tolerance since the plan will have the ability to absorb short-term losses
Sponsor financial status	Lower debt ratios and higher profitability of sponsor increase risk tolerance since sponsor will have capacity to make contributions in the event of losses in plan assets
Size of plan compared to sponsor	Smaller plans (relative to the size of the sponsor) have greater risk tolerance since the sponsor can tolerate more volatility in contributions should plan assets underperform
Common risk exposures	The lower the correlation of sponsor operating results and the returns of pension assets, the greater the risk tolerance of the plan because the low correlation implies that in times of plan underperformance, the sponsor is likely to be profitable and able to increase plan contributions
Provision for early retirement/ lump-sum distributions	Such plan features generally imply a lower risk tolerance, as the shorter investment horizon means the plan has less time to recover from short-term losses
Workforce characteristics	The younger the workforce and the higher the proportion of active lives, the greater the duration of plan liabilities—increases risk tolerance since the plan has time to recover from short-term losses



PROFESSOR'S NOTE

While a general comment about a higher funded status implying a greater ability to take risk is true, it might still be the case that willingness to take risk remains low for the plan. For example, if the plan is in surplus and the sponsor wishes to remain in surplus to minimize contributions to the plan, then minimization of surplus volatility through LDI would be most appropriate. On the exam, make sure you read the information in the question and respond to it in the most appropriate way. In recent years, the factors discussed in Figure 24.4 have been a source of institutional IPS questions on the essay portion of the exam.

EXAMPLE: Viewpoint Research Corporation (defined benefit plan)

Viewpoint Research is a leading U.K. producer of polling and survey-based market research. Viewpoint is a relatively new company that has taken advantage of new online methods of collecting research data. Viewpoint's costs are largely related to wages and technological support in the U.K., while revenues are generated from clients across Europe. Five years ago, the company introduced a DB pension plan. All participants of the plan are currently either still working for the company or have left the company for alternative employment. The plan currently has a small deficit. While similar plans often offer early retirement and lump-sum distributions as options to plan participants, Viewpoint's plan does not offer such options.

The company has seen rapid growth in earnings over the previous year, with return on equity being higher than the industry average. The company employs significant leverage, with a debt-to-assets ratio 50% higher than that of established industry competitors.

Based solely on the information provided, **discuss** two factors that increase the plan's ability to take risk and two factors that decrease the plan's ability to take risk.

Answers:

Two factors that *increase* the plan's ability to take risk are:

1. The plan has zero retired lives, since all participants are either still working for the company or are working in alternative employment. This means the plan liabilities have a relatively long duration; hence, the plan has time to recover from short-term underperformance, which increases the ability of the plan to take risk.
2. The plan does not offer early retirement or lump-sum distribution options to plan participants. This increases the duration and predictability of liabilities, increasing the ability of the plan to take risk since it has time to recover from short-term falls in funded status.

Two factors that *decrease* the plan's ability to take risk are:

1. The company has higher debt levels than the industry average. This lowers the ability of the sponsor to increase contributions to the plan if investment performance is poor, which in turn lowers the risk tolerance of the plan.
2. The plan is running at a deficit. All else equal, this lowers the ability of the plan to take risk since further underperformance of plan liabilities may have a significantly negative impact on the ability of the plan to meet its future liabilities (i.e., make pension payments as required).



PROFESSOR'S NOTE

It might be tempting to simply copy the curriculum and say that the company has a high return on equity and, therefore, has good profitability, which increases the plan's ability to take risk. This is not a good response, since this high profitability is stated for the last year only and it has come at a time when the company has high debt levels; hence, it may simply be a reflection of the leverage of the company. There is no guarantee this short-term profitability can be maintained over the long term—the two answers previously given are better answers based on the case facts.

Liquidity Needs

Pension plans must maintain enough liquidity to pay their liabilities (i.e., pension benefits) as they come due. It is important to remember that the liquidity needs of the pension plan are a function of both the benefits being paid to retired lives *and* the sponsor contributions being made to the plan. Liquidity needs are generally *higher* when:

- The proportion of retired lives in the plan is higher, since retired lives are receiving benefit payments. Frozen plans will have higher liquidity needs than nonfrozen plans due to benefits exceeding contributions.
- The workforce of the employer is older, since the time to pay benefits will be shorter.
- The plan has higher funded status, since this will likely lead to lower sponsor contributions and more benefit payments will need to be met from existing plan assets.
- The plan participants have the ability to switch or withdraw from the plan, an event that usually triggers payments to participants.

A plan with lower liquidity needs can generally invest larger amounts in more risky asset classes.

External Constraints

Regulations vary by country; however, there are similar themes in global regulation. Many regulators now require extensive reporting on fees and costs incurred by plans both internally and externally. Personal liability for pension trustees has been increased to ensure they act in the best interests of plan beneficiaries. In Europe, updates to the Institutions for Occupational Retirement Provision (IORP II) Directive is introducing enhanced requirements regarding governance, risk management, and disclosure. In the United States, the Employee Retirement Income Security Act of 1974 (ERISA) regulates investing, funding requirements, and payouts of corporate pension plans. ERISA established the Pension Benefit Guaranty Corporation, a U.S. government agency that protects beneficiaries of terminated plans. The U.S. Pension Protection Act of 2006 established minimum funding ratios for DB plans, and a later revision of the act raised the rates corporations could use to discount their liabilities by using an average high-

grade bond yield over 25 years rather than the existing market yield. While this has led to lower liabilities, it may also lead to higher risk taking in order to generate the higher returns needed to maintain funded status, since the value of liabilities will grow at this higher discount rate over time.

From a *tax* perspective, rules once again vary by country; however, pension funds are often treated favorably by governments in order to encourage individuals to save for retirement. Funds that are subject to taxation should consider the tax implications of their investment decisions. For example, lower longer-term capital gains tax rates may incentivize lower turnover strategies. Higher tax rates on profits from derivatives versus rates of returns from the underlying securities may preclude the use of derivatives. When investing internationally, funds should be aware of when and how to benefit from double-taxation treaties between countries, which may offer domestic tax credits when withholding taxes are suffered in foreign markets.

Accounting rules, again, differ by country. In the United States, corporate DB pension plans must follow GAAP, particularly Accounting Standards Codification (ASC) 715, Compensation—Retirement Benefits, which requires that funded status be shown as an asset or liability on the balance sheet. Public pension plans must follow Governmental Accounting Standards Board (GASB) rules, which require assets to be reported at market values and liabilities to be reported using a blended approach. The blended approach for liabilities uses the expected return on plan assets as the discount rate for the funded portion of the liability, and a lower discount rate—the yield on tax-exempt municipal bonds—for the unfunded portion. Using a higher discount rate for the funded liabilities could incentivize plans to take more risk in order to maintain the funded status of the plan over time.



PROFESSOR'S NOTE

The focus on the exam is on portfolio management rather than a forensic discussion of regulations, taxation, and accounting. Take away the broad points here and be led by the case study in the question in the exam. It is likely that if there is a significant external constraint that needs to be addressed, it will be referenced in the case.

Investment Objectives

For DB pension plans, the primary objective is to achieve a target return over a specified long-term horizon, while assuming a level of risk that is consistent with meeting its contractual liabilities. A secondary objective could be to minimize (in present value terms) the cash contributions the sponsor will be required to provide.

The target return of the plan should reflect the fact that plan assets need to grow through contributions and investment returns in line with the growth in liabilities of the plan (i.e., the discount rate applied to these liabilities). If a plan is in deficit, then plan assets need to grow faster than the liabilities—how much of this growth in plan assets comes from investment return and how much comes from extra contributions by the company is driven by the plan's ability to take risk and the sponsor's ability to make further contributions to the plan.

We will now focus on DC plans.

DC Pension Plan

Stakeholders

The stakeholders in a DC pension scheme include the following:

- *Plan sponsors (employers)*, while not facing the investment risk or longevity risk of the assets, retain important fiduciary responsibilities. These include contributing to the plan, overseeing the investment of plan assets, and offering suitable investment options to plan participants.
- *Plan beneficiaries (employees and retirees)* face the investment risk of contributions and investment returns not meeting retirement needs. They also face the longevity risk of living longer than expected and outliving their savings.
- *The board* must communicate with participants to keep them well informed, and these communications must consider the participants' level of sophistication. The board may be required to select a default investment option when participants are *disengaged* (i.e., do not make an explicit investment choice with their contributions).
- *Governments* are stakeholders in that they provide tax incentives for employees to save for retirement, and taxpayers will ultimately face the costs of providing welfare for those that have failed to adequately save for retirement.

Liabilities and Investment Horizon

The liabilities of a DC plan sponsor are the required contributions to plan assets; hence, unlike under a DB scheme, there is no liability associated with future benefits. Through pooling and increased scale, the DC plan may invest in alternative investments not usually available directly to retail investors. The DC plan sponsor bears the liquidity risk of any event that causes participants to exit the plan.

Individuals in a DC plan have an investment horizon linked to their age—older participants will have a shorter investment horizon because they will be retiring and drawing benefits sooner. Many DC plans offer a default *life-cycle option* (also called *target date option*) where asset mix is managed according to a desired retirement date. These life-cycle options can be either **participant-switching options**, which automatically switch members to a more conservative asset allocation as they age, or a **participant/cohort option**, which involves pooling the participant with other investors with a similar retirement date and the fund being managed more conservatively as the retirement date is approached.

Liquidity Needs

The primary drivers of liquidity needs are the age of the workforce and ability of participants to switch or withdraw from the plan. As is the case for DB schemes, if these factors are high, then liquidity needs of the fund will be high.

External Constraints

As per DB schemes, *regulations* vary by country. Regulators typically recognize that many DC plan participants have low levels of understanding about investments; therefore, there is a requirement that plan sponsors educate participants on saving for retirement, particularly with regard to default options for disengaged participants. In Australia and the United States, there is a requirement for the plan to offer a diversified

default option for participants. This, however, does not absolve the DC plan trustees of their fiduciary duties to run the plan in the best interests of participants.

From a *tax* perspective, DC plans in the United States (referred to as 401(k) plans) are *tax deferred*. This means participants make pretax contributions and investment earnings are not taxable; however, benefits are taxed as ordinary income. Withdrawals before age 59½ are penalized with an additional 10% tax. A similar tax-deferral system operates in the U.K., with the first 25% of benefits being tax-free.



PROFESSOR'S NOTE

As introduced in the DB section, ERISA in the United States and IORP II in Europe are relevant to both DB and DC plans.

Investment Objectives

The main objective of DC plans is to prudently grow assets to meet spending needs in retirement. As already discussed, there is an onus on the plan sponsor to provide cost-efficient default options for disengaged participants. If the plan offers funds with active management, a secondary objective may be to outperform the passive asset class returns of the default option's strategic asset allocation. In environments where participants can voluntarily switch between competing DC plan providers, outperforming other DC plans may be an investment objective.

Asset Allocation by DB and DC Pension Plans

Aggregate data for both DB and DC plans together show:

- Asset allocation varies by region, largely driven by differences in external constraints, risk appetite, and stakeholder preferences.
- Over the past decade, there has been a rotation from equities into alternative assets and fixed income to try to lower the volatility of funded ratios. Within equities, there is some evidence of home bias to domestic equity markets.



MODULE QUIZ 24.2

To best evaluate your performance, enter your quiz answers online.

1. An increase in which of the following factors will *most likely* lead to a decrease in the liabilities of a DB pension plan?
 - A. Life expectancy.
 - B. Years of service.
 - C. Expected employee turnover.
2. Which of the following changes would *most likely* increase the risk tolerance of a DB pension plan?
 - A. An increase in the average age of the workforce.
 - B. Poor investment performance causing the plan to move from overfunded to underfunded status.
 - C. An increase in allocation to asset classes that have a low correlation with the operating results of the sponsor.

MODULE 24.3: SOVEREIGN WEALTH FUNDS



Main Features/Mission

Video covering this content is available online.

Sovereign wealth funds (SWFs) are investment funds owned by a government. The International Monetary Fund defines five broad categories of SWF, each with different missions:

1. **Budget stabilization funds.** These are set up when a nation's revenues are heavily linked to a natural resource or other cyclical industries to insulate government budgets from commodity price volatility or economic cycles.
2. **Development funds.** This investment prioritizes national socioeconomic projects, usually infrastructure or supporting key industries.
3. **Savings funds.** These funds invest revenues from nonrenewable assets for the benefit of future generations.
4. **Reserve funds.** These are designed to earn returns on excess foreign reserves held by central banks. Typically, foreign exchange reserves held by central banks are low-yielding assets relative to the yields offered by bonds issued by central banks that make up their liabilities. Reserve funds aim to reduce this negative cost of carry through boosting returns on reserves.
5. **Pension reserve funds.** These are used to save and invest to meet future pension liabilities of governments.

Stakeholders

The stakeholders in an SWF are as follows:

- *Current and future citizens* benefit from the fund's success either directly through receiving payments or indirectly through lower taxation or increased investment in the domestic economy.
- *Investment offices* invest SWF assets either directly in-house or appoint external managers.
- *The board* has a fiduciary duty to the ultimate beneficiaries of the fund.
- *Governments* are stakeholders in that they may rely on SWF returns to balance budget deficits.

Liabilities and Investment Horizon, and Liquidity Needs

The liabilities of SWFs are linked to their overall mission and generally are less well defined than other types of institutions. The liabilities and investment horizons of the five broad types of SWFs are listed in Figure 24.5.

Figure 24.5: SWF Liabilities and Time Horizons

SWF Type	Liabilities and Investment Horizon
Budget stabilization	<ul style="list-style-type: none"> ■ Uncertain liabilities linked to commodity prices/cyclical industries ■ Short-term investment horizon because budget support required on a short-term basis
Development	<ul style="list-style-type: none"> ■ Nature of liabilities linked to socioeconomic investments made by the fund ■ Some long-term horizons (e.g., infrastructure), some medium-term horizons (e.g., medical research)
Savings	<ul style="list-style-type: none"> ■ Liabilities are linked to future generations; therefore, long term
Reserve	<ul style="list-style-type: none"> ■ Liabilities are technically the yield promised on bonds issued by governments/central banks; however, funds will target higher returns ■ Investment horizons are very long, typically with no near-term liabilities
Pension reserve	<ul style="list-style-type: none"> ■ Liabilities are linked to future pension payments; therefore, long term ■ Fund may have an <i>accumulation stage</i> in which contributions are made and a <i>decumulation phase</i> where benefits are drawn; time horizon will depend on when these stages occur

Liquidity Needs

- **Budget stabilization funds.** These must maintain the *highest* liquidity level and invest in assets with low risk of significant loss in the short term, in order to meet short-term deficits caused by negative economic- or commodity-related events.
- **Development funds.** Because infrastructure and research and innovation investments are long term, funds established to develop such projects generally have *low* liquidity needs.
- **Savings funds.** The main objective is to accumulate wealth for future generations; hence, liquidity needs are *lowest*. Liquidity needs increase as the nation's natural resources become depleted and the government withdraws from the fund to meet budgetary needs.
- **Reserve funds.** Liquidity needs are lower compared to stabilization funds but higher compared to savings funds. Liquid fixed-income securities are usually held that can be readily sold if there is a dramatic change in the reserves of the central bank.
- **Pension reserve funds.** Liquidity needs vary, being lower during the accumulation stage and higher during the decumulation stage.

External Constraints

From a *legal and regulatory* perspective, SWFs are typically established by laws that give the SWF its mission and structure. This may involve clear rules of asset allocation, particularly in the case of a development fund with a specific socioeconomic mission. In order to avoid political influence, high-quality governance, independence, transparency, and accountability are crucial. The Santiago Principles, a best-practices framework established by the International Forum of SWFs (IFSWF), addresses such concerns alongside other key elements expected of a high-quality SWF, such as ethics, risk management, and regular monitoring for compliance with the principles.

SWFs are generally *tax exempt*. This may void the SWF's ability to claim withholding taxes or tax credits that are normally available to taxable investors. Care should be taken when investing internationally to ensure double-taxation treaties exist when subject to withholding taxes abroad. SWFs should take care not to be perceived as using their status to avoid paying taxes in foreign jurisdictions in which they invest.

Figure 24.6: SWF Investment Objectives

SWF Type	Investment Objectives
Budget stabilization	<ul style="list-style-type: none"> ■ Capital preservation ■ Aims to earn returns above inflation with a low probability of losses ■ Should avoid assets correlated with the source of government revenues
Development	<ul style="list-style-type: none"> ■ Support a nation's economic development and increase long-run economic growth ■ Implicit objective is to earn a real rate of return greater than real domestic GDP growth or productivity growth
Savings	<ul style="list-style-type: none"> ■ Maintain purchasing power of the assets over time while making ongoing spending on government budgetary needs
Reserve	<ul style="list-style-type: none"> ■ Earn a rate of return in excess of the yield the government/central bank pays on bonds it has issued
Pension reserve	<ul style="list-style-type: none"> ■ Earn returns to meet future unfunded pension and social care payments promised by the government



PROFESSOR'S NOTE

As will be discussed in the next section, savings funds share very similar objectives to endowments and foundations.

Asset Allocation by Sovereign Wealth Funds

Typical asset allocations differ by type of SWF as follows:

- **Budget stabilization funds.** The majority of fixed income and cash is due to the defensive nature of the fund.
- **Development funds.** These are driven by the socioeconomic mission of the fund (e.g., investment in local infrastructure projects).
- **Savings funds.** A long investment horizon means relatively high allocations toward equities and alternative investments, such as private equity and real assets.
- **Reserve funds.** Allocations are similar to those of savings funds, but with lower allocation to alternatives due to the potentially higher liquidity needs.
- **Pension reserve funds.** These have high allocations to equities and alternatives due to a long investment horizon and low liquidity needs in the accumulation phase.

As mentioned, savings funds and pension reserve funds typically follow the endowment model. Some may also adopt the Canadian model. Another general theme that drives asset allocation is fewer constraints leading to a broader investment mandate and longer time horizons than most institutional investors (e.g., pension funds) allowing for a higher allocation to alternative assets.

MODULE QUIZ 24.3



To best evaluate your performance, enter your quiz answers online.

1. A strategic asset allocation of 10% equities, 60% fixed income, and 30% cash is most appropriate for which type of SWF?
 - A. Savings funds.
 - B. Development funds.
 - C. Budget stabilization funds.
2. To boost its foreign currency (FX) reserves, the Bank of Canada (BoC) buys USD currency from domestic Canadian exporters that received USD for their export products. In the context of reserve funds, which of the following statements is *most accurate*?
 - A. The BoC's excess FX reserves are invested in riskier, higher yielding assets.
 - B. The BoC's financing of its purchase of USD can cause deflationary pressures.
 - C. The BoC's issuance of monetary stabilization bonds result in a positive carry.



Video covering
this content is
available online.

MODULE 24.4: UNIVERSITY ENDOWMENTS AND PRIVATE FOUNDATIONS

While university endowments and private foundations have many similarities in their investment policies, they also have some key differences. We will consider these institutions individually, beginning with university endowments.

University Endowments

Main Features/Mission

University endowments are funds set up by gifts and donations, which are invested to earn returns that provide ongoing support to the university's operating budget. The main objective is to balance the needs of the university today against its needs in the future (i.e., to provide intergenerational equity).

One of the largest endowments is that of Harvard University with assets in excess of \$30 billion in 2016.

Stakeholders

The stakeholders of a university endowment are current and future students, alumni who contribute gifts and donations, and university employees whose livelihoods depend on the university. Stakeholders often have representation on the endowment's board or investment committee, such as alumni who may be investment professionals.

Liabilities and Investment Horizon

The need to maintain intergenerational equity and the unlimited life of the university mean endowments have a perpetual investment horizon.

The endowment's liabilities are the future payouts promised to the university, presented in an official spending policy. The endowment's spending policy should ensure intergenerational equity while smoothing payouts to insulate the university from market volatility. To achieve this, the dollar amount of spending each year can be stated as a weighted average of the previous year's spending (adjusted for inflation) and a spending rate (usually between 4% and 6%) applied to a moving average of assets under management (AUM). This can be formulated as:

$\text{spending}_{t+1} = w \times [\text{spending}_t \times (1 + \text{inflation})] + \{(1 - w) \times (\text{spending rate} \times \text{average AUM})\}$

where:

w = weight of the prior year's spending amount

Three different types of spending policies result from different values of w :

1. **Constant growth rule ($w = 1$).** The endowment provides a fixed (real) annual payout to the university once adjusted for inflation by the Higher Education Price Index (HEPI). While this method gives more certainty to the university of the payouts that will be received, this means the percentage of endowment value paid out periodically will fluctuate with the endowment value. This spending rule often contains caps and floors representing maximum and minimum percentage values of AUM over one or three years that can be paid out in any period.
2. **Market value rule ($w = 0$).** Annual payouts are a prespecified percentage (the *spending rate*, usually between 4% and 6%) of the three-to-five-year moving average of asset values. Payouts under this method are procyclical in that spending will fluctuate in line with the moving average of asset values.
3. **Hybrid rule ($0 < w < 1$).** Spending is a weighted average of the previous two rules.

Other liability-related factors that need to be considered are as follows:

- **Fundraising from donors.** Gifts and donations coming into the endowment mean that the net spending rate is closer to 2% to 4% of assets rather than the 4% to 6% spending rate applied.
- **Reliance of the university on the spending from the endowment.** All else equal, if the endowment spending comprises a larger proportion of the university's operating budget, then the risk tolerance of the endowment is lower.
- **Capability of the endowment or university to issue debt.** Access to debt markets increases the risk tolerance of the endowment because the institution can borrow to meet spending in times of poor investment performance.

Liquidity Needs

As noted previously, the endowment's annual spending net of gifts and donations is usually very low (around 2% to 4% of assets). Low liquidity needs plus the perpetual time horizon mean endowments usually have a high risk tolerance and absorb relatively high volatility in the short term in pursuit of longer-term returns.

External Constraints

From a *legal and regulatory* perspective, regulation varies by jurisdiction; however, endowments are typically subject to laws that require:

1. Investment on a total return basis (i.e., earning returns from both income and capital gains, not simply generating spending through income returns) and diversification according to modern portfolio theory (MPT).
2. Investment committees or boards and staff who have a fiduciary duty of care in overseeing investments.

In the United States, the Uniform Prudent Management of Institutional Funds Act 2006 (UPMIFA) allows flexibility in spending decisions and enforces the adoption of MPT. In

the U.K., the Trustee Act (2000) plays a similar role (relevant to endowments since they are often structured as trusts in the U.K.). The shift to MPT principles has allowed endowments to allocate to a broad range of asset classes.



PROFESSOR'S NOTE

UPMIFA and the Trustee Act also apply to private foundations as discussed in the next section.

Endowments typically have *tax-exempt* status when generating investment returns. Universities are not typically taxed on payouts from the endowment, and donors to endowments usually can deduct gifts from their taxable income.

Investment Objectives

The investment objective is to preserve the purchasing power of the assets in perpetuity (i.e., grow in line with inflation) while achieving returns adequate to maintain the level of spending. As discussed previously, spending policy can be formulated in different ways; however, a typical spending rate target is 5% of average assets.

In practice, this means the university endowment has a primary objective to generate a real return (i.e., after inflation measured using the HEPI) of about 5% on average over a three-to-five-year period. A reasonable volatility limit is typically 10% to 15%. There may be a secondary objective of outperforming a passive benchmark or even a tertiary objective of outperforming a peer group of similar endowments. An issue with the objective of outperforming a peer group is that it may lead to decisions becoming dislocated from the core mission of funding unique liabilities and may lead to *herding* by investment managers into similar investments.

Given endowments need to beat inflation, they tend to have a significant allocation to real assets with expected returns that meet or beat inflation. One lesson from the 2007–2009 financial crisis is that the liquidity risk of endowments' portfolios should be analyzed with detailed cash flow modeling. Some endowments use a liquidity *risk band* representing an upper bound for the fund's exposure to illiquid investments, including the endowment's uncalled commitments in illiquid alternative asset funds.

Asset Allocation by University Endowments

Most large U.S. university endowments follow the endowment model, which involves a majority (>50%) allocation to alternative investments, an allocation that has increased over the past two decades. Smaller U.S. university endowments tend to allocate less to alternatives and more to domestic equities and fixed income, with some evidence of home bias causing U.S. equities to be overweighted in these portfolios relative to non-U.S. equities.

EXAMPLE: The Capital University endowment

The Capital University endowment supports 10% of the university's operating budget. The investment office of the endowment is relatively small, and the endowment has an annual spending policy to pay out 4% of the five-year average asset value to the university.

The endowment has historically allocated 30% to public U.S. equities and 70% of the portfolio to fixed income. The board has historically set the objective that annualized volatility should be no more than 15%, and this is not expected to change. A recent review of the endowment's investment policy yielded

the following assumptions for expected asset class returns and recommended strategic asset allocation for the endowment:

Asset Class	10-Year Nominal Expected Return	Recommended Strategic Asset Allocation
Fixed income	3%	25%
U.S. equities	6%	35%
International equities	7%	20%
Real estate	8%	10%
Private equity	10%	10%

Expected consumer price inflation over the next 10 years is 1% per year. Higher education price inflation, as measured by the HEPI, is expected to be 100 basis points per year above consumer price inflation.

1. **Formulate** the investment objectives for the Capital University endowment's IPS. **Calculate** the nominal required return of the endowment that is consistent with this objective.
2. **Discuss** whether the recommended shift in strategic asset allocation weights should be accepted based on the expected return.
3. **Discuss** one factor that could make the recommended strategic asset allocation inappropriate for the endowment.

Answers:

1. The mission of the Capital University endowment is to maintain the purchasing power of the endowment's assets while financing 10% of the operating budget of the university in perpetuity. The nominal required return consistent with this object is a return that meets the spending rate of 4% plus the relevant rate of inflation, namely the HEPI, which is expected to be 1% + 100 basis points = 2%. Hence, the nominal required return of the endowment is 4% + 2% = 6%. The annual volatility of returns should not exceed 15%.
2. Based on expected return alone, the recommended strategic asset allocation weights should be accepted since the current asset allocation fails to meet the nominal required return objective, but the new asset allocation does meet the objective.

The current asset allocation is expected to earn a nominal return of $(0.3 \times 6\%) + (0.7 \times 3\%) = 3.9\%$. This falls far short of the required nominal return of 6%.

The new asset allocation is expected to earn a nominal return of:

$$(0.25 \times 3\%) + (0.35 \times 6\%) + (0.2 \times 7\%) + (0.1 \times 8\%) + (0.1 \times 10\%) = 6.05\%$$

This meets the nominal required return objective of 6%.

3. Concerns regarding the new strategic asset allocation include the following:
 - The current investment office is described as small and appears to have no experience investing in alternative assets. The board should ensure that the investment staff have the skills, experience, and contacts to perform due diligence on the new asset classes—in particular, the alternative investment allocations to private equity and real assets.
 - The new strategic asset allocation must adhere to the risk objective of a maximum annual volatility of 15%. The investment staff should analyze whether the new asset allocation is going to meet this objective.

We now turn our attention to private foundations.

Private Foundations

Main Features/Mission

Foundations are nonprofit institutions set up to make grants to support specified charitable causes.

The focus of this reading is on *private* foundations set up by individual donors and their families, an example of which is the Bill & Melinda Gates Foundation, with focuses on global health and poverty. Foundations can also be *community* foundations set up by and for the good of the local community, *operating* foundations set up to fund a specific not-for-profit business, or *corporate* foundations set up from the profits of an existing company.

The main objective of private foundations is typically to maintain purchasing power in perpetuity and earn returns sufficient to support the grant-making activities of the foundation (similar to a university endowment's objective).

Stakeholders

The stakeholders of a private foundation may include the founding family, donors to the foundation, recipients of grants from the foundation, and the wider community that the foundation's activities may benefit. Intergenerational tensions may exist like those of an endowment where the needs of current recipients and future recipients of spending from the foundation need to be balanced. The government could also be considered a stakeholder due to the favorable tax treatment of foundations.

Board members of foundations are less likely to have professional investment experience than alumni on endowment boards. This difference in experience may result in less rigorous board oversight or greater delegation to investment staff. This may affect the quality of investment decisions, particularly in more sophisticated markets such as alternative investments.

Mission-related investing (also known as *impact investing*) is a technique increasingly adopted by foundations whereby investments are made into projects that promote the foundation's mission. The challenge with such investments is maintaining a sufficient return on assets to meet the foundation's long-term objectives.

Liabilities and Investment Horizon

Foundations typically have an investment horizon that is perpetual. There is a trend toward limited-life foundations that are mandated to spend down assets within a limited time frame of the founder's death, which would shorten the investment horizon.

In the United States, tax laws require private grant-making foundations to pay out *a minimum of 5% of assets (on a 12-month trailing basis) plus investment expenses*. Foundations must also spend any donations in the year the donation is received (known as flow through).

Unlike universities, which have other sources of revenue outside the spending of their endowment, foundations are relied upon almost exclusively to meet budgets. This, along with the higher liquidity requirements of foundations, means they typically have a lower risk tolerance than university endowments.

Liquidity Needs

As mentioned previously, U.S. foundations are legally required to spend 5% of assets. Foundations should maintain sufficient liquidity to meet near-term spending, capital

calls from private limited partnership fund investments, and any margin calls on derivatives employed by the investment portfolio.

External Constraints

From a *legal and regulatory* perspective, foundations are subject to similar laws, such as UPMIFA in the United States and the Trustee Act in the U.K., which demand investment on a total return basis, diversification, and a duty of care from the board and investment staff.

Foundations typically have similar *tax-exempt* status to endowments, but this status depends on the minimum spending rules mentioned in the previous section. Failing to meet the spending requirement results in a 30% tax on undistributed income. Most U.S. foundations are also subject to a 2% tax on net investment income.

Investment Objectives

The investment objective is to generate a real return over consumer price inflation of the spending rate (minimum 5%) plus investment expenses, with expected annual volatility in a reasonable range (approximately 10% to 15%) over a three-to-five-year period.

There may be a secondary objective of outperforming a policy benchmark based on a tracking error budget.

Asset Allocation by Private Foundations

As mentioned, foundations have a lower risk tolerance than university endowments due to higher liquidity requirements and the heavy reliance on the foundation's spending. However, their overall risk tolerance remains high and, with a long-term objective of beating inflation, larger U.S. foundations allocate about half of the portfolio to alternative investments. Smaller foundations tend to have a higher allocation to domestic equities and fixed-income securities.



MODULE QUIZ 24.4

To best evaluate your performance, enter your quiz answers online.

1. A university endowment has an annual spending policy of 5% of the three-year rolling asset value. Consumer price inflation is expected to be 3% per annum, while the Higher Education Price Index (HEPI) is expected to be 2.5% per annum. The investment objective of the endowment should be to achieve a total real rate of return of at least:
 - A. 5.0%.
 - B. 7.5%.
 - C. 8.0%.

MODULE 24.5: BANKS AND INSURERS



We now turn our attention to banks and insurers; these institutions are different from other institutions in that they are financial intermediaries that are run *for profit*. It is important to remember throughout this discussion that we are advising the institution on *its investment portfolio*, not on its core business of being a bank or an insurance company (however, as we shall see, these two activities are interlinked with each other).

Video covering this content is available online.

Banks

Main Features/Mission

The primary function of a bank is to earn profits by taking deposits from savers and making loans to borrowers. Other functions carried out by a bank are safeguarding assets, executing transactions in securities and derivatives, and advising and investing in securities.

Stakeholders

Most major large international banks are publicly listed, making shareholders a key external stakeholder with an interest in maximization of profits. Customers of a bank, such as depositors and borrowers, are also key external stakeholders. Depositors expect the bank to protect their assets over time, and they make up a majority of the liabilities of the bank. Retail borrowers rely on the bank to finance home purchases, and commercial borrowers rely on the bank to fund their operations. These loans make up a majority of the assets of the bank. Other external stakeholders include creditors, credit rating agencies, regulators, and communities where the bank operates.

Internal stakeholders include the bank's employees, managers, and directors.

Liabilities and Investment Horizon

Deposits constitute the majority of a bank's liabilities. This includes *demand deposits*—which can be withdrawn without notice and are therefore deemed short term in duration—and *time/term deposits* that require advance notice before withdrawal.

Other liabilities include short-term wholesale funding from other financial institutions, long-term debt, and trading/securities payables and repo finance payables.

The majority of the assets of a bank are comprised of longer-term illiquid mortgage and commercial loans.

The investment horizon for a bank portfolio is influenced by the difference between the long-term illiquid assets and the short-term liquid liabilities of the bank. Although banks are perpetual organizations, the instruments held in the investment portfolio of a bank are likely to be very short in nature, such that the bank can manage the volatility of shareholder capital on a medium- to short-term basis.

Liquidity Needs

With deposits as short-duration liabilities and the potential need to raise liquidity in adverse market conditions, liquidity management is a key focus for banks. Since the 2007–2009 financial crisis, regulations have been introduced that require banks to have sufficiently liquid assets to cover near-term expected cash outflows (liquidity coverage ratios, or LCRs) and to have adequate levels of capital from stable sources (net stable funding ratios, or NSFRs). This has led to the investment portfolios of banks being more liquid and banks relying less on the wholesale interbank funding markets.

Banks lending to commercial markets still tend to use wholesale funding markets more than banks lending to retail markets. Retail banks use a higher level of retail deposits in their funding, which have lower costs and tend to be more stable than wholesale funds, giving retail banks a better liquidity position than commercial banks.

External Constraints

From a *legal and regulatory* perspective, the risks that a systemic bank failure pose to critical economic functions such as payment processing and extension of credit mean that regulators are intensely focused on capital adequacy, liquidity, and leverage levels.

The main goal of regulators is to make sure that banks have adequate capitalization to absorb losses rather than the losses having to be faced by customers, creditors, or taxpayers. This can be achieved through requiring diversification, asset quality-based reserves, and diverse and stable sources of funding. As seen in the section on liquidity, regulators require that banks maintain LCRs and NSFRs.



PROFESSOR'S NOTE

When considering the impact of investment decisions on required regulatory reserves, it is important to understand that a quality-based reserves system will require that a bank provide for higher reserves when they hold more risky assets. For example, if a bank switched from less-risky investment-grade bonds to riskier high-yield bonds, the risk-weighted assets of the bank would increase in the eyes of the regulator, and required reserves would consequently be higher.

Economies of scale and the benefits of diversification encourage banks to increase their size, with the largest banks regarded by regulators as *systemically important financial institutions* (SIFIs). Since the global financial crisis, regulations for these SIFIs have:

- Increased capital required to absorb losses on assets.
- Placed limits on the amount of dividends and share buybacks since these payouts to shareholders effectively increase the leverage of the institution.
- Restricted the ability of subordinated debtholders and preferred shareholders to exert their claims in a bankruptcy, forcing them to bear more of the risk of the bank's activities.
- Restricted the use of derivatives, proprietary trading, and the use of off-balance sheet liabilities and guarantees.

From an *accountancy* perspective, three different accounting systems apply to financial institutions:

1. Standard financial reporting (GAAP or IFRS) is used to communicate results to shareholders. Due to the accruals process of accounting, this provides the smoothest reporting of income.
2. Statutory accounting is utilized by regulators and is comprised of a series of adjustments to make the accounts more conservative—for instance, removing intangible assets from the balance sheet, accelerating certain expenses and costs, and the recognition of reserves against unexpectedly large losses on assets or payments under guarantees.
3. True economic accounting uses market value for all assets and liabilities. This is likely to give the most volatile measure of income.

Banks typically are fully *taxable* entities; hence, they must consider the after-tax returns of their investment programs.



PROFESSOR'S NOTE

As will be seen later, this high-level discussion of regulation, accountancy, and tax also applies to insurance firms as well as banks.

Investment Objectives

The primary objective of a bank's investment portfolio is to manage liquidity and reduce risk mismatches between the bank's noninvestment assets and liabilities.

Banks establish an asset and liability management committee (ALMCo) to oversee investment activities. The ALMCo will set the IPS, monitor performance, and set risk limits regarding market, credit, liquidity, and solvency risks, with the authority to require changes on the asset and liability sides of the balance sheet. Having established these objectives, the investment team sets policy benchmarks, monitors performance, and reports to the bank's management and board.

We now turn our attention to the other major type of financial intermediary: insurers.

Insurers

Main Features/Mission

Insurers can be divided into the following two broad categories:

- **Life insurers.** They write insurance relating to whole life or term insurance with fixed payments, variable life insurance (with payouts linked to returns of investment funds chosen by the policyholder), annuity products, health insurance, and universal life insurance (with flexible premiums and benefit payouts).
- **Property and casualty (P&C) insurers.** They write insurance relating to commercial property and liability, home ownership, marine insurance, surety, and legal liabilities.

Stakeholders

Insurers tend to be organized as either publicly listed companies or mutual companies. For publicly listed companies, key external stakeholders are *shareholders* who require long-term maximization of the value of their capital while simultaneously honoring obligations to policyholders. Mutual companies are owned by their *policyholders*, either retaining profits as a surplus against potential losses or distributing them to policyholders through dividends or premium reductions. Other external stakeholders include derivatives counterparties, creditors, regulators, and rating agencies.

For traditional life insurance (including universal life) and fixed annuity policies, life insurers maintain a *general account* to fund the liabilities because the insurer bears the investment risk associated with meeting claims under these contracts. For variable life policies and variable annuities, the insurer operates a *separate account* in which assets are invested according to the investment choices of policyholders. For these policies, the policyholder bears the investment risk.

Internal stakeholders include an insurer's employees, management, and board of directors.

Liabilities and Investment Horizon

Insurance companies manage their investments with a focus on asset and liability management; therefore, the nature of the liabilities is crucial to the investment horizon of the investment portfolio.

Life insurers generally face a long duration liability stream through their contract payouts, although this can vary by product line. Because of this, life insurance companies have historically set investment horizons of 20 to 40 years.

P&C insurers generally face a liability stream with a shorter duration and higher uncertainty because claims are related to unlikely, unpredictable events with high payouts, such as natural disasters.

In a similar way to banks, while the institution has a perpetual time horizon, the nature and timing of policy claims will strongly affect the time horizon of investments held. A key consideration for both life and P&C insurers is the frequently occurring underwriting cycle, which causes fluctuations in profitability driven by changes in the level of competition at different points of the insurance business cycle. For example, at times of intense competition and low profits from underwriting insurance contracts, insurers will be inclined to bear less underwriting risk, which may increase their appetite for investment risk, all else equal.

Liquidity Needs

An insurer needs to manage both *internal* liquidity (cash from operations and investing activities) and *external* liquidity (ability to borrow in debt markets). Liquidity needs are affected by the level of interest rates. In times of high interest rates, policyholders with historically low-yielding contracts may surrender (i.e., cash in) their policies in order to invest at higher yields in other investments, thereby increasing the net cash outflows of the life insurer.

As noted previously, P&C insurers face significant cash flow uncertainty due to the nature of their liabilities; hence, portfolios require the ample liquidity of high proportions of cash or cash equivalents and short-term fixed-income securities.

Insurers divide general account investments into two major components: the *reserve* portfolio and the *surplus* portfolio. Regulations require the insurer to maintain a reserve portfolio capable of meeting policy liabilities, and this is therefore managed conservatively. The surplus portfolio is used to generate higher returns, often by assuming liquidity risk and allocating to alternative investments.

External Constraints

From a *legal and regulatory* perspective, insurers, like banks, carry out crucial financial intermediary roles and can become large enough to be classified by regulators as SIFIs. Similar to banks, regulators will aim to ensure that insurers have sufficient capital to absorb losses in the business and losses from investments.

In the United States, the *National Association of Insurance Commissioners (NAIC)* is an association of state regulators that set accounting and reporting policies. In Europe, *Solvency II* is a framework being used to standardize regulation across member states.

From an *accountancy* perspective, standard financial reporting, statutory reporting, and true economic accounting rules apply to insurers just as they do to banks.

Insurers typically are fully *taxable* entities and must run their investment programs with consideration of after-tax returns.



The high-level discussion of regulation, accountancy, and tax in the section on external constraints for banks is also relevant to insurers. Once again, keep in mind that a switch into riskier investments will increase the regulatory required reserves of the institution.

Investment Objectives

Similar to banks, the primary objective of an insurer's *investment* portfolio is to manage liquidity and reduce risk mismatches between the institution's assets and liabilities. This process must therefore consider the general business conditions of the insurer and the expected external economic conditions.

The investment oversight function of an insurer is typically carried out by a board committee that is responsible for all investment policies and procedures and reports to regulators and external stakeholders.

MODULE 24.6: BANKS AND INSURERS; BALANCE SHEET MANAGEMENT AND INVESTMENT CONSIDERATIONS



Video covering
this content is
available online.

LOS 24.i: Describe considerations affecting the balance sheet management of banks and insurers.

CFA® Program Curriculum, Volume 5, page 66

For both banks and insurance companies, the primary overall objective of the company is to maximize the market value of the institution's equity capital with a high level of assurance that the claims of depositors, creditors, and policyholders can be met.

An expression that captures how changes in the market value of assets, liabilities, and leverage levels affect the change in the market value of equity is:

$$\% \Delta E = \% \Delta A(M) - \% \Delta L(M - 1)$$

where:

$\% \Delta E$ = percentage change in the value of equity

$\% \Delta A$ = percentage change in the value of assets

$\% \Delta L$ = percentage change in the value of liabilities

M = leverage multiplier, A / E



PROFESSOR'S NOTE

This equation makes intuitive sense—the first term on the right-hand side (A) reflects how asset returns are magnified by the leverage (M) used by the firm. The second term relates to the liabilities of the company—the negative sign reflects the fact that increases in liabilities cause equity levels to fall, all else equal. The $M - 1$ term represents the size of liabilities relative to equity. For example, $M = 4$ means that for every \$4 of assets, the company has \$1 of equity. Since assets are funded by equity and liabilities, liabilities must be \$3 (i.e., $M - 1$).

EXAMPLE: Percentage change in the value of equity

A bank has an equity-to-assets ratio of 5%. **Calculate** the estimated percentage change in the market value of equity if liabilities rise by 1.5% and assets remain stable.

Answer:

With an equity-to-assets ratio of 5%, this means the bank has a leverage multiplier M of $1 / 0.05 = 20\times$.

If liabilities rise by 1.5% and assets do not change, then using the equation, the percentage change in the market value of equity is estimated to be:

$$\% \Delta E = (0\% \times 20) - (1.5\% \times 19) = -28.5\%$$

The previous equation can be tweaked slightly to assess the sensitivity of the institution's equity capital to a unit change in the reference yield, y , of the assets (i.e., the modified *duration* of the equity capital). This equation is:

$$D_E = D_A(M) - D_L(M - 1) \left(\frac{\Delta i}{\Delta y} \right)$$

where:

D_E = modified duration of the institution's equity capital

D_A = modified duration of the institution's assets

D_L = modified duration of the institution's liabilities

M = leverage multiplier, A / E

$\frac{\Delta i}{\Delta y}$ = estimated change in yield of liabilities, i , relative to a unit change in yield of assets, y



PROFESSOR'S NOTE

Recall that modified duration measures the percentage change in the value of an asset or liability versus a 1% change in yield. This formula is analogous to the previous formula—the only extra term is the $\frac{\Delta i}{\Delta y}$ term, which reflects the expected movement in the yield of liabilities (i) relative to the expected move in the yield of assets (y). The measures of M and $M - 1$ are playing exactly the same role as in the previous equation.

EXAMPLE: Computing duration for life insurer

WellLife Holdings is a life insurer with equity capital to financial assets of 12.5%. In a recent report to the board by the investment committee, the duration of assets was listed as 3, with the duration of liabilities listed as 2. It is also estimated that the yield on the liabilities of the insurer is likely to move by 70 basis points for every 1% move in the yield of the asset portfolio.

1. **Calculate** the duration of the insurer's shareholder capital.
2. **Estimate** the impact of a 25-basis-point fall on the value of shareholder capital in yields of the asset portfolio.
3. Management of the insurer is considering changing the ratio of equity-to-assets to 10%. Assuming all else stays the same, **discuss** the resulting impact on the duration of shareholder capital.

Answers:

1. If equity-to-assets is 12.5%, then the leverage multiplier $M = 1 / 0.125 = 8x$. As per the information in the question, $D_A = 3$, $D_L = 2$, and $\frac{\Delta i}{\Delta y} = 0.70$.

The modified duration of shareholders' equity is therefore calculated as:

$$D_E = (3 \times 8) - (2 \times 7 \times 0.70) = 14.2$$

2. A modified duration of 14.2 implies that a 1% change in the level of yield of the asset portfolio will lead to approximately a 14.2% change in the value of equity. Hence, if the yield of the asset portfolio falls by 25 basis points, then the value of equity will increase by approximately $0.25 \times 14.2 = 3.55\%$.

3. An equity-to-assets ratio of 10% implies a leverage multiplier, M , of $1 / 0.1 = 10$ x. If all other variables stay the same, then the new modified duration of shareholders' equity will be:

$$D_E = (3 \times 10) - (2 \times 9 \times 0.70) = 17.4$$

This framework can be extended to consider the expected volatility (i.e., standard deviation) of the percentage changes in the market value of equity capital using the following formula:

$$\sigma_E^2 = M^2 \sigma_A^2 + (M - 1)^2 \sigma_L^2 - 2(M)(M - 1) \sigma_A \sigma_L \rho_{AL}$$

where:

σ_E = standard deviation of percentage change in the market value of equity

σ_A = standard deviation of percentage change in the value of assets

σ_L = standard deviation of percentage change in the value of liabilities

M = leverage multiplier, A / E

ρ_{AL} = correlation of percentage value changes in assets and liabilities



PROFESSOR'S NOTE

Recall the two-asset variance formula that has been used many times over the course of the CFA curriculum—namely when combining assets 1 and 2 with weights w_1 and w_2 , standard deviations σ_1 and σ_2 , and correlation ρ_{12} . The resulting variance of the portfolio is given by:

$$\sigma_{1+2}^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1 w_2 \sigma_1 \sigma_2 \rho_{12}$$

The equation for σ_E^2 is a simple application of this familiar formula to a *portfolio* with a weight, M , in the assets of the institution and a weight of $-(M - 1)$ in the liabilities of the institution.

EXAMPLE: Computing volatility for life insurer

WellLife Holdings maintains a common equity-to-assets ratio of 12.5% and estimates that the annualized volatilities of assets and liabilities are 7% and 4% respectively. The investment committee estimates that the correlation between asset and liability returns is 0.3.

1. **Calculate** the standard deviation of changes in the value of shareholder capital.
2. New regulations are being introduced that will force WellLife to increase its equity-to-assets ratio to 20% and lower the volatility of its assets to 5%. **Calculate** the expected volatility of shareholder capital after the new regulations come into force, assuming all else stays the same.

Answers:

1. The leverage multiplier is $1 / 0.125 = 8$ x. With $\sigma_A = 0.07$, $\sigma_L = 0.04$, and $\rho_{AL} = 0.3$, the variance of shareholders' equity is given by:

$$\begin{aligned} \sigma_E^2 &= (8^2 \times 0.07^2) + (7^2 \times 0.04^2) - (2 \times 8 \times 7 \times 0.07 \times 0.04 \times 0.3) = (8^2 \times 0.07^2) + (7^2 \times 0.04^2) - \\ &= 0.298 \\ (2 \times 8 \times 7 \times 0.07 \times 0.04 \times 0.3) &= 0.298 \end{aligned}$$

The standard deviation of shareholders' equity is therefore $\sqrt{0.298} = 0.546$, or 54.6%.

2. The new leverage multiplier is $1 / 0.2 = 5$ x. Using a new figure of $\sigma_A = 0.05$, the variance of shareholders' equity is given by:

$$\begin{aligned} \sigma_E^2 &= (5^2 \times 0.05^2) + (4^2 \times 0.04^2) - (2 \times 5 \times 4 \times 0.05 \times 0.04 \times 0.3) = (5^2 \times 0.05^2) + (4^2 \times 0.04^2) - \\ &= 0.0641 \\ (2 \times 5 \times 4 \times 0.05 \times 0.04 \times 0.3) &= 0.0641 \end{aligned}$$

The standard deviation of shareholders' equity is therefore $\sqrt{0.0641} = 0.253$, or 25.3%.

There are many strategies that the management of a bank or an insurance company can use to change the factors driving the volatility of shareholders' equity. These strategies could relate to the investment portfolio assets or the nature of the liabilities created by the operations of the company. A summary of these strategies is displayed in Figure 24.7.

Figure 24.7: Strategies for Changing Volatility

Strategy	Impact on Factor	Impact on σ_E	Comments
Hold diversified fixed-income investments	Lowers σ_A	Falls	Diversified fixed income has a lower standard deviation than other riskier asset classes.
Hold high-quality fixed-income investments	Lowers σ_A	Falls	There's a lower chance of significant loss in asset value.
Maintain similar asset and liability durations, and match asset/liability exposure to borrower and claimant options	Increases ρ_{AL}	Falls	Regulators penalize institutions with high asset/liability mismatches.
Hold common stock investments	Increases σ_A Lowers ρ_{AL}	Rises	Most regulators require reserves of 100% to be held against investments in common stock.
Derivatives transparency and collateralization	Lowers σ_A and σ_L Increases ρ_{AL}	Falls	The more understood and protected against counterparty default the institution is, the less chance there is of unexpected losses.
Hold more liquid portfolio investments	Lowers σ_A	Falls	
Surrender penalties for insurance contracts	Lowers σ_L	Falls	Penalties cushion losses when policyholders cash in after interest rates have risen.
Prepayment penalties on debt investments	Increases ρ_{AL}	Falls	Prepayments will occur in a low interest rate environment. Penalties on prepayments help offset rising liabilities in a falling rate environment.
Catastrophic insurance risk	Increases σ_L	Rises	Such losses are large and unpredictable and will cause regulators to demand higher reserves, investment in more liquid assets, and more robust reinsurance agreements.
Predictability of underwriting losses	Decreases σ_L	Falls	Total insurance liabilities are less uncertain.
Diversifying insurance business	Decreases σ_L	Falls	Total insurance liabilities are less uncertain.
Variable annuities	Increases ρ_{AL}	Falls	Asset investment gains and losses are passed through to policyholders due to the nature of the contract.

Asset Allocation for Banks and Insurers

In the case of banks and insurers, optimal investment management simultaneously focuses on the investment portfolio and the liabilities of the business, all within the context of external economic conditions and regulatory reserve requirements. The investment manager also needs to be conscious of the factors that affect the volatility of shareholders' equity and optimal levels of leverage as discussed previously.



PROFESSOR'S NOTE

While it might seem daunting that so many factors need to be considered when drafting an investment policy for banks and insurers, keep in mind that exam questions are likely to be very focused on a particular scenario. Often, a very basic knowledge of duration, credit risk, and liquidity of fixed-income securities—as well as the impact a change in these factors will most likely have on earnings, volatility of shareholder capital, and regulatory required reserves—is enough to answer the case study-related questions in the curriculum, as evidenced by the next example.

EXAMPLE: Switching to riskier investments

The ALMCo of SJT Bank recently conducted a quarterly review of business and investment conditions. The main findings are as follows:

- There is evidence that current corporate spreads are significantly below historical norms. It is expected that economic conditions are likely to deteriorate with corporate spreads widening.
- The bank expects disruption in the securitization and secondary loan markets to lower the liquidity of the bank's loan book. They also expect that withdrawals from depositors are likely to become larger and less predictable as economic conditions worsen.

As a result of these findings, the investment management team plans to switch a large portion of its investment portfolio from high-yield corporate floating-rate securities into investment-grade fixed-rate government securities. The team also plans to enter a plain vanilla pay-fixed/receive-floating interest rate swap under standard mark-to-market collateral terms with counterparties.

1. **Discuss** how the planned investment switch addresses the two main findings of the quarterly review conducted by the ALMCo.
2. **Discuss** the likely impact of the switch on required regulatory risk-based reserves.
3. **Describe** how the switch, including the swap position, likely affects the asset and liability duration mismatch of the bank.
4. What is the effect on expected earnings and expected volatility of earnings?

Answers:

1. The first finding of the ALMCo states that credit spreads are expected to widen. This will cause high-yield corporate bond prices to fall by more than investment-grade government bond prices. The proposed switch from high-yield corporate bonds to investment-grade government securities will therefore lower the bank's exposure to widening credit spreads.

The second finding of the ALMCo states that the liquidity position of the bank is likely to worsen. Assets in the loan book are expected to become more difficult to sell, while demands for liquidity from depositors are expected to increase. The investment-grade government bonds are likely to be more liquid than the high-yield corporate bonds; hence, the switch will improve the liquidity position of the investment portfolio of the bank. This should help offset the deterioration in liquidity conditions in the bank's business.

2. The regulatory risk-based capital the company is required to hold is likely to fall. The government securities are investment grade, while the corporate bonds are high yield, or below investment grade, and as such will have higher credit risk than the government securities. Hence, the risk weighting of the government securities is going to be lower than the risk weighting of the corporate bonds. This means the regulator will view the company as having lower risk-weighted assets and, hence, will require it to hold less equity capital.

3. The switch, including the swap, will not affect the duration of the assets of the company. The switch from floating-rate securities to fixed-rate securities increases the duration of the bond portfolio since fixed-rate assets have higher durations than floating-rate assets. However, the pay-fixed/receive-floating swap will create a synthetic liability increasing the duration of the liabilities since the fixed-leg payments made under the swap will have a higher duration than the floating-leg payments received under the swap. If tailored correctly, this increase in liability duration will counterbalance the increase in asset duration, and the asset and liability profile of the bank will remain unchanged.
4. The government securities are likely to have a lower yield than the corporate securities because they do not offer a credit spread. This will lower the earnings of the bank. The volatility of the more liquid investment-grade government securities should also be lower than the volatility of the corporate bonds. This will lower the volatility of changes in the value of shareholders' equity capital.



MODULE QUIZ 24.5, 24.6

To best evaluate your performance, enter your quiz answers online.

1. Capital requirements for banks and insurance companies are typically set with reference to:
 - A. statutory reporting.
 - B. true economic reporting.
 - C. standard financial reporting.
2. SAJ Assurance (SAJ) is a life insurance company that underwrites a diverse range of life assurance and annuity products. The following is an excerpt from the IPS of SAJ:

SAJ splits the firm's general account into two components: the reserve portfolio and the surplus portfolio. The objective of the reserve portfolio is to provide liquidity to pay policyholder claims in the normal course of insurance operations. The objective of the surplus portfolio is to hedge interest rate mismatches that occur between the reserve portfolio and the liabilities of the firm.

This excerpt is *best described* as:

 - A. correct.
 - B. incorrect because it is the separate account of the life insurer that is broken down into the reserve and surplus portfolios, not the general account.
 - C. incorrect with respect to the objective of the surplus portfolio. The surplus portfolio should be run with the objective of taking higher risk in order to earn higher returns to grow the surplus over the long term.
3. A bank has an equity capital ratio of 20%. Assets are expected to have a standard deviation of 7%, and liabilities are expected to have a standard deviation of 5%. The correlation of assets and liabilities is estimated to be 0.5. The volatility of shareholder capital for the bank is *closest* to:
 - A. 9.3%.
 - B. 16.3%.
 - C. 30.4%.

KEY CONCEPTS

LOS 24.a

The five common characteristics of institutional investors are their larger size, long-term investment horizons, regulatory frameworks, governance frameworks, and principal-agent issues.

LOS 24.b

The investment policy statement (IPS) of an institution formally sets out the institution's mission and objectives, liabilities, investment horizon, external constraints (regulatory,

accounting, and tax), asset allocation, and rebalancing and reporting policies.

Four common models used in institutional investing are the Norway model, the endowment model, the Canada model, and the liability-driven investing (LDI) model.

LOS 24.c, 24.d, 24.f, 24.g

The stakeholders and key elements of the IPS for defined benefit (DB) pension plans versus defined contribution (DC) pension plans are described in the following table.

	DB Plan	DC Plan
Stakeholders	Employers, plan beneficiaries, investment staff, investment committee/board, governments, shareholders	Employers, plan beneficiaries, investment staff, investment committee/board, governments
Liabilities	Present value of future benefits promised to plan participants Higher when: <ul style="list-style-type: none"> ■ Employees work longer ■ Salaries are higher ■ Participants live longer ■ Lower employee turnover leads to higher vesting ■ Discount rate is low 	No liability to plan sponsor once required contribution to plan has been met
Investment time horizon	Longer if proportion of active lives is higher	Dependent on the age of participant (longer if younger)
Liquidity needs	Higher with: <ul style="list-style-type: none"> ■ More retired lives ■ Older workforce ■ Higher funded status (may reduce contributions) ■ Flexibility of participants to switch plans 	Higher with: <ul style="list-style-type: none"> ■ Older workforce ■ Flexibility of participants to switch plans

The stakeholders and key elements of the IPS for the five types of SWFs are described in the following table.

	DB Plan	DC Plan
External constraints	<ul style="list-style-type: none"> ■ Regulations vary by country: IORP II in Europe, ERISA in United States ■ Tax treatment favorable ■ Accounting rules: ASC 715 requires funded status to be shown on balance sheet (U.S. GAAP); public pension plans follow GASB 	<ul style="list-style-type: none"> ■ Regulations vary by country: IORP II in Europe, ERISA in United States ■ Sponsor must offer appropriate default option to disengaged participants ■ Plans are tax deferred
Investment objectives	Achieve a long-term target return over a specified horizon with appropriate risk to meet contractual liabilities	Prudently grow assets to meet spending needs in retirement

The following table describes the stakeholders and key elements of the IPS for university endowments and private foundations.

	Budget Stabilization	Development	Savings	Reserve	Pension Reserve
Stakeholders	Country's citizens, the government, external and internal investment management				
Liabilities	Uncertain: linked to commodity prices/ economic cycle	Linked to socioeconomic investments	Spending on future generations	Yield promised on central bank/ government bonds	Future pension payments
Investment time horizon	Short term	Long/medium term depending on investment projects	Long term	Long term	Long term
Liquidity needs	Highest	Generally low	Lowest	Intermediate	Varies: low during accumulation stage, higher during decumulation stage
External constraints	Established by national legislation. Best practice set by IFSWF's Santiago Principles. Generally tax exempt.				
Investment objectives	Capital preservation	Real growth higher than real GDP growth	Maintain real perpetual spending	Grow faster than yield on central bank/ government bonds	Earn returns to meet future unfunded government pension payments

The stakeholders and key elements of the IPS for banks and insurers are described in the following table.

	University Endowments	Private Foundations
Stakeholders	Current and future students, alumni, university employees	Founding family, donors, grant recipients, broader community, governments
Liabilities	<ul style="list-style-type: none"> ■ Set by the future spending promised to the university ■ Spending policy should consider: <ul style="list-style-type: none"> – Ongoing donations – Reliance of university on spending – Ability to issue debt ■ Spending may use a rule that takes a weighted average of last period's spending (adjusted for inflation) and a fixed spending rate applied to average AUM 	<ul style="list-style-type: none"> ■ U.S. tax rules require minimum spending of 5% of assets plus investment expenses ■ Must also spend donations in the same year they are received
Investment time horizon	Perpetual	Typically perpetual, but shortened for limited-life foundations
Liquidity needs	<ul style="list-style-type: none"> ■ Spending rate net of donations is very low at 2%–4% of assets 	<ul style="list-style-type: none"> ■ Higher than endowments—legally required to spend 5% of assets ■ Reliance on spending by foundation is usually higher than the reliance of a university on endowment spending
External constraints	Typically tax exempt. Regulation varies by jurisdiction but generally requires a total return approach and prudence in investing (UPMIFA in United States, the Trustee Act in the U.K.).	
Investment objectives	Generate a total real return (after inflation measure by the HEPI) of about 5% on a three-to-five-year rolling basis, with reasonable annual volatility in the range of 10%–15%	Generate a real return over consumer price inflation of the spending rate (minimum 5%), plus investment expenses, on a three-to-five-year rolling basis, with reasonable annual volatility in the range of 10%–15%

LOS 24.e

The risk tolerance of a defined benefit pension plan is generally higher when:

- Funded status is higher.
- The sponsor has lower debt levels and is more profitable.
- The plan is small relative to the size of the sponsor's business.
- The correlation between the plan assets and the business of the sponsor is low.
- The plan has no provisions for early retirement or lump-sum options.
- The workforce is young and the plan has a high level of active lives.

LOS 24.h

Aggregated data of both DB and DC plans show that asset allocation varies by country due to differences in regulation, tax constraints, investment objectives, risk appetite, and demographics.

Typical asset allocation by SWF type include:

- Budget stabilization funds (mainly bonds and cash).
- Development funds (depends on socioeconomic causes supported).
- Savings and pension reserve funds (higher levels of equities and alternatives).
- Reserve funds (equities, alternatives with significant allocation to bonds).

Typical asset allocation for endowments and private foundations include the following:

- **University endowments.** Large U.S. endowments use the endowment model with a majority allocation to alternatives. Smaller U.S. endowments tend to hold more domestic equities and fixed income, with a lower allocation to alternatives.
- **Private foundations.** Large foundations allocate approximately 50% to alternatives. Smaller foundations allocate more to public equities and fixed income.

LOS 24.i

The change in the market value of equity is given by:

$$\% \Delta E = \% \Delta A(M) - \% \Delta L(M - 1)$$

where:

$\% \Delta E$ = percentage change in the value of equity

$\% \Delta A$ = percentage change in the value of assets

$\% \Delta L$ = percentage change in the value of liabilities

M = leverage multiplier, A / E

The duration of the equity of a bank or insurer is given by:

$$D_E = D_A(M) - D_L(M - 1) \left(\frac{\Delta i}{\Delta y} \right)$$

where:

D_E = modified duration of the institution's equity capital

D_A = modified duration of the institution's assets

D_L = modified duration of the institution's liabilities

M = leverage multiplier, A / E

$\frac{\Delta i}{\Delta y}$ = estimated change in yield of liabilities, i , relative to a unit change in yield of assets, y

The expected volatility (i.e., standard deviation) of the percentage change in the market value of equity capital is given by:

$$\sigma_E^2 = M^2 \sigma_A^2 + (M - 1)^2 \sigma_L^2 - 2(M)(M - 1) \sigma_A \sigma_L \rho_{AL}$$

where:

σ_E = standard deviation of percentage change in the market value of equity

σ_A = standard deviation of percentage change in the value of asset holdings

σ_L = standard deviation of percentage change in the value of liabilities

M = leverage multiplier, A / E

ρ_{AL} = correlation of percentage value changes in assets and liabilities

The volatility of equity of a bank or insurer can be lowered by:

- Reducing the volatility of assets.
- Reducing the volatility of liabilities.
- Lowering leverage.
- Increasing the correlation of assets and liabilities.
- Diversifying assets and liabilities.
- Increasing the liquidity and quality of investment assets.
- Accessing stable funding sources.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 24.1

1. **A** The first statement is incorrect. Institutional clients are generally larger in scale than individual clients. While this may cause some smaller asset classes or strategies to be inaccessible due to capacity issues, generally, the larger scale of institutional clients opens up more asset classes (e.g., private equity and real estate) that are not generally available to individual investors.

The second statement is correct. Institutional investment programs tend to have more formal governance structures than the investment programs of individual investors, including an investment committee, board, and investment staff. (LOS 24.a)

2. **B** The endowment model is the approach most likely to meet the objectives of the foundation because it involves a large allocation to alternative investments and uses externally managed investment funds that employ active management. The Norway model is inappropriate because it uses largely passive strategies and provides little or no allocation to alternatives. The Canada model is inappropriate because it relies on internally managed assets rather than outsourcing to external managers. (LOS 24.b)

Module Quiz 24.2

1. **C** An increase in expected employee turnover would reduce the expected vesting of benefits with plan participants, since fewer employees are likely to complete minimum service conditions required to become eligible to receive benefits. This will lower the liabilities faced by the pension plan. An increase in years of service would lead to higher liabilities because benefits are usually linked directly to years of service. An increase in the life expectancy of plan participants will increase the liabilities of the plan because benefits are paid in every year of retirement. (LOS 24.c)
2. **C** Allocating to asset classes with returns that have a low correlation with the operating performance of the sponsor increases the plan's ability to take risk because it is more likely that the sponsor will be able to make contributions in times of poor investment performance. The fund moving from overfunded to underfunded status is most likely to lower the risk tolerance of the plan since continued underperformance may jeopardize the ability of the plan to meet future benefit payments. An increase in the average age of the workforce will shorten the

time before benefits need to be paid. This is likely to lower the risk tolerance of the plan assets since there is less time to recover from any short-term poor performance. (LOS 24.e)

Module Quiz 24.3

1. **C** Budget stabilization funds are defensive in nature and are therefore largely fixed income and cash. Development funds would be expected to invest in projects and investments that promote the socioeconomic goals of the fund, while savings funds would allocate a higher weight to alternative investments and equities in order to meet their objective of beating inflation over the long term. (LOS 24.h)
2. **A** A country always needs FX reserves for global trade and for paying its foreign currency debt.

In this example, the BoC invests the USD in very liquid but low yielding U.S. Treasuries. The BoC finances its purchase of USD by printing CAD currency. However, flooding the Canadian market with more CAD currency can cause *inflationary* pressures, therefore, answer choice B is incorrect.

The BoC counters those inflationary pressures by issuing monetary stabilization bonds to “absorb” the excess CAD currency. The stabilization bonds are issued at a higher yield than the yield received from the U.S. Treasury investments. That results in a cost called “negative carry” (e.g., issue debt at higher yield, invest at lower yield), therefore, answer choice C is incorrect.

The BoC periodically determines and updates how much in USD currency it needs in its FX reserves. Excess FX reserves not needed can then be transferred to a reserve fund and invested in riskier, higher yielding assets to offset the negative carry, therefore, answer choice A is correct. (LOS 24.h)

Module Quiz 24.4

1. **A** In order to preserve the purchasing power of the endowment, the real required rate of return (i.e., excluding inflation) should be equal to the spending rate of 5%. Note that the nominal required rate of return would include inflation as measured by the HEPI, totaling $5\% + 2.5\% = 7.5\%$. (LOS 24.f)

Module Quiz 24.5, 24.6

1. **A** Statutory reporting is required by regulators, which involves a series of adjustments to standard financial reporting that remove low-quality assets and accelerate certain expenses in order to set the level of required reserves. (Module 24.5, LOS 24.d)
2. **C** The excerpt is incorrect with regard to the objective of the surplus portfolio. The surplus portfolio represents investment funds of the company in excess of those required to meet the expected claims of policyholders. As such, the usual objective with the surplus portfolio is to take higher risk to earn higher returns in order to grow the surplus, maximize value for shareholders, and remain competitive as a life insurance company from a pricing perspective. (Module 24.5, LOS 24.g)

3. C The expected variance of the percentage changes in the market value of equity capital is given by:

$$\sigma_E^2 = M^2 \sigma_A^2 + (M - 1)^2 \sigma_L^2 - 2(M)(M - 1) \sigma_A \sigma_L \rho_{AL}$$

where:

σ_E = standard deviation of percentage change in the market value of equity

σ_A = standard deviation of percentage change in the value of assets

σ_L = standard deviation of percentage change in the value of liabilities

M = leverage multiplier, A / E

ρ_{AL} = correlation of percentage value changes in assets and liabilities

In this case, $\sigma_A = 0.07$, $\sigma_L = 0.05$, and $\rho_{AL} = 0.5$. The equity capital ratio of 20% implies that E / A = 0.20; hence A / E = 1 / 0.2 = 5x. Using the formula:

$$\begin{aligned} \sigma_E^2 &= 5^2(0.07)^2 + (5 - 1)^2(0.05)^2 - 2(5)(5 - 1)(0.07)(0.05)(0.5) \\ &= 0.1225 + 0.04 - 0.07 = 0.0925 \end{aligned}$$

Then, $\sigma_E = \sqrt{0.0925} = 0.304$ or 30.4%. (Module 24.6, LOS 24.h)

TOPIC QUIZ: PRIVATE WEALTH MANAGEMENT AND INSTITUTIONAL INVESTORS

You have now finished the Private Wealth Management and Institutional Investors topic sections. On your Schweser online dashboard, you can find a Topic Quiz that will provide immediate feedback on how effective your study of this material has been. The test is best taken timed; allow three minutes per question. Topic Quizzes are more exam-like than typical QBank questions or module quiz questions. A score less than 70% suggests that additional review of the topics is needed.

FORMULAS

conditional factor risk model:

$$(\text{Return on HF}_i)_t = \alpha_i + \beta_{i,1}(\text{Factor 1})_t + \beta_{i,2}(\text{Factor 2})_t + \dots + \beta_{i,K}(\text{Factor K})_t + D_t\beta_{i,1}(\text{Factor 1})_t + D_t\beta_{i,2}(\text{Factor 2})_t + \dots + D_t\beta_{i,K}(\text{Factor K})_t + (\text{error})_{i,t}$$

where:

α_i = intercept for hedge fund i

$\beta_{i,K}(\text{Factor K})_t$ = exposure during *normal* periods to risk factor K

D_t = dummy variable that equals zero during normal periods, and one during a financial crisis

$D_t\beta_{i,K}(\text{Factor K})_t$ = *incremental* exposure to risk factor K during financial crisis periods

$(\text{error})_{i,t}$ = random error with zero mean

after-tax holding period return:

$$R' = [(value_1 - value_0) + income - tax] / value_0$$

Alternatively, $R' = R - (tax / value_0)$

after-tax post-liquidation return:

$$R_{PL} = [(1 + R'_1)(1 + R'_2)\dots(1 + R'_n) - (\text{liquidation tax} / \text{final value})]^{1/n} - 1$$

liquidation tax = (final value – tax basis) × tax rate on capital gains

after-tax excess return:

The after-tax excess return (x') is computed as the after-tax return of the portfolio (R') minus the after-tax return of the benchmark (B').

$$x' = R' - B'$$

In this regard, the tax alpha would be defined as after-tax excess return (x') minus the pretax excess return (x).

$$\alpha_{\text{tax}} = x' - x$$

tax-efficiency ratio (TER):

The TER is calculated as after-tax return (R') divided by pretax return (R).

$$\text{TER} = R' / R$$

after-tax future value (R') of the portfolio:

$$\text{FV}_{AT} = (1 + R')^n$$

tax-exempt account (TEA):

$$\text{FV}_{AT} = (1 + R)^n$$

tax-deferred account (TDA):

$$FV_{AT} = (1 + R)^n(1 - t)$$

$$RV_{\text{tax-free gift}} = FV_{\text{gift}} / FV_{\text{bequest}}$$

$$FV_{\text{gift}} = [1 + r_g(1 - t_g)]^n$$

$$FV_{\text{bequest}} = [1 + r_e(1 - t_e)]^n(1 - T_e)$$

The two potential RV ratios are as follows:

1. RV of a tax-free gift, $T_g = 0$

$$RV_{\text{tax-free gift}} = RV_{\text{tax-free gift}} = \frac{FV_{\text{gift}}}{FV_{\text{bequest}}} = \frac{[1 + r_g(1 - t_g)]^n}{[1 + r_e(1 - t_e)]^n(1 - T_e)}$$

2. RV of a taxable gift, T_g , paid by receiver

$$RV_{\text{taxable gift}} = RV_{\text{taxable gift}} = \frac{FV_{\text{gift}}}{FV_{\text{bequest}}} = \frac{[1 + r_g(1 - t_g)]^n(1 - T_g)}{[1 + r_e(1 - t_e)]^n(1 - T_e)}$$

The change in the market value of equity for banks and insurers:

$$\% \Delta E = \% \Delta A(M) - \% \Delta L(M - 1)$$

where:

$\% \Delta E$ = percentage change in the value of equity

$\% \Delta A$ = percentage change in the value of assets

$\% \Delta L$ = percentage change in the value of liabilities

M = leverage multiplier, A / E

The duration of the equity of a bank or insurer:

$$D_E = D_A(M) - D_L(M - 1) \left(\frac{\Delta i}{\Delta y} \right)$$

where:

D_E = modified duration of the institution's equity capital

D_A = modified duration of the institution's assets

D_L = modified duration of the institution's liabilities

M = leverage multiplier, A / E

$\frac{\Delta i}{\Delta y}$ = estimated change in yield of liabilities, i , relative to a unit change in yield of assets, y

The expected volatility (i.e., standard deviation) of the percentage change in the market value of equity capital for a bank or insurer:

$$\sigma_E^2 = M^2 \sigma_A^2 + (M - 1)^2 \sigma_L^2 - 2(M)(M - 1) \sigma_A \sigma_L \rho_{AL}$$

where:

σ_E = standard deviation of percentage change in the market value of equity

σ_A = standard deviation of percentage change in the value of assets

σ_L = standard deviation of percentage change in the value of liabilities

M = leverage multiplier, A / E

ρ_{AL} = correlation of percentage value changes in assets and liabilities

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