2026

CAIA®

Exam Prep

Schweser's Secret Sauce®

Level II

KAPLAN SCHWESER

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CAIA Level II

2026

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SCHWESER'S SECRET SAUCE®: 2026 CAIA® LEVEL II

Published in 2025 by Kaplan, Inc.

ISBN: 978-1-0788-5437-5

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ABOUT THIS REVIEW GUIDE

Schweser's Secret Sauce® is intended to serve as a focused and practical companion after your initial studies. This concise book distills the most critical concepts, definitions, and exam strategies from the extensive CAIA Level II curriculum. It is designed for efficient review, portability, and quick reference during the final phase of exam preparation.

It is important to emphasize, however, that not every learning objective in the curriculum is addressed in detail. To build a comprehensive understanding, we strongly encourage you to utilize this guide as a review of the material from the SchweserNotes™, the official CAIA curriculum, and additional practice resources. Repetition and consistent review are important components of successful mastery on exam day.

Earning the CAIA designation is a significant undertaking. The breadth and depth of the material require diligence, discipline, and perseverance. There are no shortcuts to genuine understanding of the material. Your preparation should be thorough and systematic, making full use of the suite of study tools available to you, including the SchweserNotes™, OnDemand Classes, SchweserPro™ QBank, and Mock Exams.

By pursuing the CAIA credential, you are joining a distinguished global community of investment professionals dedicated to advancing the practice and principles of alternative investments. Whether you are seeking career advancement, a transition to a new role, or an enhancement of your investment acumen, the knowledge and skills you acquire in this program will serve you well throughout your professional journey.

On behalf of the entire Kaplan Schweser team, we thank you for selecting us as your educational partner. We extend our best wishes for your studies and look forward to your future achievements as a CAIA charterholder.

CAIA ETHICAL PRINCIPLES

Readings 1.1–1.2

Weight on Exam	0% (Multiple Choice) 10% (Constructed Response)
SchweserNotes™ Reference	Book 1, Pages 1–34

Ethics comprises 10% of the CAIA Level II exam and plays a critical role in your overall success. Questions in this section can be subtle and detail-oriented, requiring a thorough and thoughtful approach. Begin your preparation for Ethics early, and revisit the material multiple times to reinforce your understanding. Mastery of Ethics is essential for success on the exam.

READING 1.1: PROFESSIONALISM AND FIDUCIARY RESPONSIBILITIES

Investment Industry

The major participants in the investment industry are asset owners, asset managers, consultants, brokers, investment banks, service providers, and regulators. The participants interact with technologies and markets in the investment ecosystem. Technologies consider factors such as regulation and investment theory, which shape investment strategies and capital allocation. Markets refer to the securities to be transacted to generate wealth as well as the need for skilled investment professionals and service providers (e.g., traders, custodians).

The purpose of the investment industry can be broken up into four parts: (1) intrinsic, (2) core, (3) fundamental, and (4) collateral. The **intrinsic purpose** refers to simply matching savers (those with excess capital to invest) with spenders (those who need to borrow capital to achieve their objectives). There is also the **core purpose**, which is portfolio management. This involves picking the most appropriate investments that will generate optimal returns over the long term, but within the constraint of acceptable risk levels. In addition, there is the **fundamental purpose**, which is to enhance overall societal wealth and well-being. The investment industry enhances societal well-being if its activities result in greater access to capital markets for everyone. Finally, the **collateral purpose** looks to provide opportunities for employment as well as investment firm growth.

Value Creation

In the investment industry, wealth and risk management are the main form of value creation. These activities occur most frequently during portfolio creation and portfolio management (i.e., balancing returns with investor risk tolerances over the long term). Current attention is placed on risk management at given points in time as well as relative risk (i.e., portfolio risk relative to an appropriate benchmark). Improvement in this area would be more focus on continuous risk management as well as absolute risk.

The value that is created by a firm must consider the individual characteristics of the firm, as noted in the firm's mission or objective. That value creation should also consider all relevant stakeholders, including society in general. The main idea behind **sustainable finance** is to satisfy asset owner current needs while not jeopardizing the interests of future stakeholders.

From a system-value perspective, the investment industry and society are integrated and must be evaluated together. Value creation is earning a required financial return (i.e., maximizing shareholder *value*) and potentially an even higher return (i.e., maximizing shareholder *welfare*). The investment industry positively impacts society by providing employment opportunities and capital.

Fiduciary Duty

Fiduciary duty attempts to hold investment professionals to high standards when performing duties on behalf of their clients. Fiduciary obligations typically cover the following four areas:

1. **Loyalty.** In the context of investment strategies, clients/beneficiaries always come first, and there should be no conflicts of interest between clients/beneficiaries and the investment professional.
2. **Prudence and care.** Perform duties with sufficient care and judgment to the level of a prudent individual.
3. **Diversification.** Achieve sufficient diversification consistent with modern portfolio theory and accepted industry practice.
4. **Impartiality.** Ensure that the investment professional does not favor any client/beneficiary over another.

One challenge to the areas of fiduciary obligations is that an exact application of each area is problematic, as there will likely be multiple valid approaches. As a result, modern portfolio theory and industry practice are often used in conjunction with each other. The definition of *fiduciary duty* naturally changes as investment theory and practice change over time. Furthermore, there is no universal definition of exactly what fiduciary duty involves (e.g., which investment personnel are subject to fiduciary duty).

In short, the four areas of fiduciary duty essentially address the concept of professionalism in the investment industry. Additionally, in the context of making investment decisions, the areas require the fiduciary to consider not only client needs, but also the overall needs of society.

A true fiduciary and professional mindset involves anticipating a long-term relationship with a client that provides value and financial rewards. Five specific values to consider within the professional mindset are as follows:

1. **Ethical and professional behavior.** Such behavior is heavily embedded in firm culture so that personnel are motivated and possibly even rewarded for behaving in an ethical and professional manner.
2. **Partnership.** The investment firm functions as a partner to the client, and the firm's employees use their professional skills to help achieve the client's investment objectives.
3. **Client first.** Knowledge of clients and their needs is an important first step, upon which investment decisions are made that are congruent with those needs.
4. **Transparency, integrity, and accountability.** These are pervasive values for professionals in general, but when interacting with stakeholders, information relayed to them should be clear, thorough, and not misleading.

5. **Public responsibility and clean license to operate.** Investment professionals must strive to achieve investment results that enhance the firm's and the industry's reputation.

Culture is often influenced by the top leaders within the group, and the leaders who demonstrate professionalism serve as role models for others within the group. Behaviors reflect a group's culture, which means all members influence the culture through their consistent professional behavior. The impact of culture is seen both in the group's past and future activities.

Client-First Mindset

In a manager-client relationship, trust is given by the client and sought by the asset manager. The client trusts that the asset manager will manage the risk and return elements of the client's investment portfolio for the client's benefit. Gaining a client's trust requires the following elements:

- **Credibility.** The asset manager is licensed and qualified to provide the service and has met all relevant regulatory requirements.
- **Communication.** The asset manager communicates with clients on a timely and thorough basis, using relevant technology where applicable.
- **Professionalism.** The asset manager has the ability to deliver the service at the appropriate skill level, together with loyalty, care, and prudence.

If making the "right choice" is not obvious, there are three general instances to consider: (1) conflicts of interest, (2) the tradeoff of benefits and costs, and (3) insufficient knowledge of the client. The investment decision should occur under a methodical and transparent application of rules and principles that embed the firm's underlying culture.

Unfortunately, there are competing incentives in the current system that often provide asset managers with higher short-term remuneration and/or enhanced reputation at the cost of not acting in the best interests of their clients (i.e., acting unprofessionally). For example, the fees paid by the client may be out of proportion to the value added.

The current state of the investment industry could arguably be classified as a **misaligned industry**, which is somewhat good for the industry but not good for society. The industry benefits from high remuneration to some players, but it is paid for by members of society. If all members of the investment industry were to use a professional mindset, it could result in a reclassification of the industry as a **professional industry**, which is good for both the industry and society.

There are three entities to consider regarding the virtuous circle of positive forces:

1. A *portfolio* benefits from managers with expertise and focus, which improves the chances of achieving performance objectives.
2. The *client* earns outstanding returns, which enhances the trust in the asset manager and leads to a stronger and more stable manager-client relationship.
3. The *asset manager* earns greater fees and incentives from the client given outstanding investment performance.

READING 1.2: ETHICS

Foundations of the CAIA Ethical Principles

Recently, there has been a shift in thinking about the investment industry as a stand-alone entity to one that is part of an **investment ecosystem**, which involves market participants, stakeholders, financial markets, motivations, theories and strategies, regulations, principles, and boundaries. This ecosystem has many purposes, which should all be motivated by common ethical factors.

It should be noted that **values** are individual beliefs and motivations, while **ethics** are a collective understanding of what is right and wrong. Ethics is a moral compass that can be used to find the right path in any landscape. Ethical factors in an investment context include honesty, fairness, diligence, and mutual respect. Self-interest should be minimized wherever possible.

The **value creation equation** illustrates that combining purpose, professionalism, and assurance will generate value (for clients). A sense of purpose (e.g., vision and goals) is what gives professionalism direction. Only when a purpose is identified should strategies be deployed. In this context, strategy includes the business model, investment model, people model, and change model, all linked by the system model. Assurance methods (e.g., fiduciary duty and trust) connect professionalism with organization and client outcomes.

Assurance of quality defines the critical professional standards necessary for the provider-client relationship to thrive. The four parts of assurance are (1) fiduciary duty, (2) license to operate, (3) trust, and (4) managing conflicts of interest. These elements will evolve over time as markets, products, and needs change.

Fiduciary duty is a legal requirement that those who manage money for others must behave in the best interests of the beneficiary/client rather than their own best interests.

License to operate refers to the legitimacy and social acceptance that an investment manager needs to attain from stakeholders to function effectively.

In an investment context, **trust** is confidence extended between an end user and a service provider. It is enhanced by both personal and organizational reputation, but it is built slowly and can be destroyed quickly.

A **conflict of interest** can arise when one party's interests compromise their prudent judgment when making a decision. The fiduciary standard requires providers to act in their clients' best interest at all times.

Ethical Principles for Investment Professionals

The eight **CAIA Ethical Principles** assist investment professionals with an understanding of how they should behave. These principles set the tone for an ethical standard of care that exceeds the minimum standards imposed by rules and regulations.

Principles 1 through 4 can be categorized as "doing the right things," while Principles 5 through 8 can be categorized as "doing things right." *Doing the right things* refers to ethical intent and values; *doing things right* refers to execution competence.

Principle 1: Ethical and Professional Behavior

Principle 1 encourages the company and its professionals to create a culture that prioritizes, respects, and promotes ethical and professional behavior. An ethical and professional approach acknowledges the broader impact of investment decisions. Thus, it aims to produce results that benefit the company while also demonstrating consideration for all stakeholders, including society. It is important to prioritize clients, but not at the expense of other stakeholders. A key focus is the company's approach to managing externalities such as sustainability, human rights, inclusivity, and human capital within its various businesses and portfolios.

Principle 2: Partnership

Principle 2 encourages collaboration among the company, its professionals, and clients through peer-to-peer partnerships. The company must view its specialized skills as essential to client success, and not as a competitive edge over clients. Successful partnerships depend on mutual trust, empathy, strong relationships, open communication about expectations, and effective conflict resolution.

Principle 3: Client-First Mindset

Principle 3 encourages a client-first mindset that prioritizes knowing the clients, understanding their needs (Principle 2), and acting accordingly. The focus here is on dedicated client commitment and purpose-driven actions. Both aspects contribute to better alignment and increased trust.

Principle 4: High Standards of Conduct: Transparency, Integrity, and Accountability

Principle 4 encourages the company and its professionals to conduct all activities with high standards of conduct. Thus, all communications with clients, employees, colleagues, investees, regulators, and other stakeholders are required to be transparent, accurate, and authentic.

Principle 5: High Standards of Practice

Principle 5 encourages high standards of practice. This involves having expert investment skills, demonstrating rigorous, evidence-based thinking that is aligned with industry standards, and conducting ongoing reviews of best practices across all responsibilities.

Principle 6: Professional Work

Principle 6 encourages high-quality professional work, which involves extensive research and due diligence, a broad scope of thinking, and ongoing client interaction. Managing risk should be a core professional competency. This encompasses a comprehensive understanding of how interconnected factors influence risks and outcomes.

Principle 7: Continued Learning

Principle 7 encourages continuous learning, which enhances an individual's ability to adapt to new information and changing situations. This commitment to ongoing personal and professional growth involves self-learning and self-improvement.

Principle 8: Collaboration

Principle 8 encourages collaboration among investors inside the firm and throughout the finance industry in an effort to enhance value. The accuracy and insightful nature of client

advice and communications benefit from peer review, diverse perspectives, critical thinking, and differing viewpoints.

Principles-Based Approach

A **principles-based approach** promotes an ethical standard of care that exceeds that required by rules and regulations. It models a global view that enables flexibility and case-by-case treatment. Using principles allows the investment industry to evolve as markets and conditions change. They lay the foundation for professionals to balance wealth management and risk management for clients while also promoting an affordable, secure, and sustainable investment ecosystem.

Examples of Ethical Misconduct in the Finance Industry

This section reviews five significant ethical breaches that have occurred over the last several decades. These examples involve both general partners and limited partners, and demonstrate that ethical breaches are not limited to trading in the financial markets. A common theme across all five cases is inadequate checks and balances.

MF Global. This firm was a commodities broker that made substantial bets on illiquid fixed-income investments. The market did not move the way they forecasted, and its unhedged losses became large. MF Global moved client assets into the firm's account to meet margin calls, which resulted in significant regulatory violations as well as capital losses. There were multiple associated failures in governance.

Archegos Capital Management. This family office escaped regulation requirements due to how it was structured. They amassed significant positions using leverage, and their counterparties were not aware of the firm's aggregate risk exposure. Their holdings moved in the wrong direction, and as a result, margin calls ensued. Massive losses for the counterparties resulted, along with a guilty plea by the firm's founder.

Bear Stearns. This Wall Street firm heavily invested in MBSs and CDOs at the wrong time. The Great Financial Crisis (GFC) began in 2007, and losses mounted. The firm told investors that losses were better than reality. Portfolio managers told investors they were adding personal investments when they were actually selling and shorting what the fund invested in. To avoid bankruptcy, the firm was sold to JPMorgan in 2008.

New York State Common Retirement Fund. The New York State comptroller was accepting bribes and political contributions from a placement agent to direct fund investment in a way that was inconsistent with sound due diligence. Jail time and regulation both resulted for the main participants.

CalPERS. The CEO of the California Public Employees' Retirement System (CalPERS) accepted bribes from a placement agent to direct investment dollars to certain PE investments. There were governance failures and massive conflicts of interest involved.

INSTITUTIONAL ASSET OWNERS

Readings 2.1–2.5

Weight on Exam	8%–12% (Multiple Choice) 0%–10% (Constructed Response)
SchweserNotes™ Reference	Book 1, Pages 35–135

Major institutional investors include endowments, foundations, sovereign wealth funds, and family offices. Each investor type has unique attributes and unique investment strategies that are critical to understand. Also important is the concept of the investment policy statement (IPS), which outlines the objectives and constraints applicable to each investor.

READING 2.1: TYPES OF ASSET OWNERS AND THE INVESTMENT POLICY STATEMENT

Institutional Investors

Endowments are set up by nonprofit organizations for the purpose of raising funds to support specific activities. **Foundations** are operationally similar to endowments but must spend a minimum amount of their assets on an annual basis to maintain a tax-advantaged status.

Pension funds are established by a plan sponsor to provide retirement income for individuals. The four types of pension funds are as follows:

- **Public pension funds**, operated by national governments and intended to provide retirement income to individuals.
- Private defined benefit (DB) funds, where benefits are known (or defined).
- Private defined contribution (DC) funds, where contributions to the plan by the sponsor for beneficiaries are known (or defined).
- **Individually managed accounts**, which are savings plans for individuals with the employee fully controlling the investments.

Sovereign wealth funds (SWFs) are used by national governments to maintain intergenerational equity (some funds currently generated are set aside for future generations).

A **family office** is a firm that manages the investment assets of one client who is typically a very wealthy individual or family. Funds are often used to support current living needs, future generations, and charities.

Risk and Return Within Strategic Asset Allocation

Strategic asset allocation (SAA) optimizes both return and risk from a long-term perspective. Tactical asset allocation (TAA) can be used to build on SAA. Assuming past risk and return

observations will continue to persist in the future under similar economic conditions, the expected return is calculated as:

> expected return = short-term real riskless rate + expected inflation + risk premium

Reasons for estimation challenges include the following:

- Asset classes like private equity and hedge funds have shorter histories.
- Alpha is likely to diminish going forward as more investors participate in alternative assets.
- New alternative asset classes will develop in the future and will have no track record.

Caps and floors may be placed on asset allocations and can go from 5% to over 30%. Allocation percentages consider

- absolute allocation size,
- relative allocation size, and
- liquidity needs.

Asset Allocation Objectives

Asset owners' **objectives** are stated using both return and risk measures, with higher (lower) returns aligned with higher (lower) risks.

Constraints Within Investment Policy

A **constraint** must be incorporated into any investment strategy for a client. **Internal constraints** are set by the client and may relate to

- **liquidity** requirements, including outflows needed in the next 12 months along with minimums for cash and liquid investments relative to illiquid investments;
- **time horizon**, where risk is aligned with the length of the horizon; and
- **sector and country limits**, which restrict investments in certain types of investments or even in certain countries.

External constraints come from market forces and are outside of client control. Two types of constraints include

- **tax status**, which incorporates the taxability of investments with the taxability of the investor, and
- **regulations**, which may restrict the amounts or types of investments.

Investment Policy Statement Within Institutional Asset Ownership

An **investment policy statement (IPS)** describes the main objectives and constraints of an investment strategy and puts forth a general plan to satisfy them. The benefit an asset owner achieves from a well-developed IPS process comes from defining long-term investment objectives, aligning investment beliefs with risk tolerance, comparing actual to budgeted investment results, assisting other stakeholders in understanding investments, staying focused on big-picture issues and linking strategy to objectives, and understanding how the IPS functions as a guiding document for fiduciaries.

The first part of the IPS includes the description of the asset owner and mission, the purpose and scope, the investment philosophy, and the frequency of ongoing reviews.

Roles and responsibilities related to the IPS are as follows:

- Board of trustees: approves the IPS and allocation strategies and performs periodic reviews.
- Investment/finance committee: makes recommendations on specific areas delegated by the board.
- Internal staff: manage operational activities and investment monitoring.
- Investment adviser(s) and/or outsourced chief investment officer (OCIO): may have specific deliverables and fiduciary duties.
- Trustee/custodian and other external providers, who should have clearly stated duties and responsibilities.

Investment objectives should be feasible and congruent with the client's mission while also making sense. Objectives based on institutional investors may be defined as follows:

- Endowments and foundations: Capital growth, returns keeping up with/exceeding inflation, sustaining spending needs over the long term. Outperforming inflation by a targeted percentage is a **common investment objective of endowments**.
- Pension funds: DB plans have a known benefit amount (liability), so the **common investment objective of pension funds** is a target return rate above the liability discount rate. DC plans will focus on providing a broad set of investments to allow for reasonable diversification.
- SWFs: Objectives will vary based on the type of SWF.
- Family office: Objectives will vary based on the family's specific preferences and may involve capital preservation.

Time horizon aligns with risk and liquidity in that shorter (longer) time horizons suggest a lesser (greater) ability to tolerate risk and a lack of liquidity. Long term is generally considered over 10 years. Endowments, foundations, SWFs, and family offices all tend to have long time horizons, while DB plans are generally long term but are vulnerable to certain issues that may reduce the time horizon.

Risk tolerance, which includes a willingness to accept short-term losses, must be consistent with the return requirement, time horizon, and liquidity needs. Risk can be defined at the portfolio, portion of the portfolio, or individual investment level.

Spending policies must balance the cash-flow needs of current and future beneficiaries. Endowments and foundations frequently have spending policies.

An investment strategy's long-term success comes from proper asset allocation. Ranges and targets should focus on asset categories and asset classes. Rebalancing techniques should be in place to adjust for temporary drifts from desired targets.

Managers should be evaluated based on long-term results, relative performance, and actual versus stated style. Strategic investment guidelines should be included along with TAA and rebalancing decisions. Periodic reviews should be in place to determine the effectiveness of investment strategies. SAA and TAA portions of portfolios may use different benchmarks for evaluation purposes.

Additional considerations include responsible investing, proxy voting, brokerage and other investment-related expenses, and liquidity policies.

READING 2.2: FOUNDATIONS AND THE ENDOWMENT MODEL

Endowment and Foundations

An **endowment** refers to a large capital base that is maintained on an inflation-adjusted basis in perpetuity. The purpose is to generate annual income in perpetuity to help fund operational costs for organizations such as universities, hospitals, and museums. The nominal value of the initial gift is known as the **corpus**. Endowment funds may consist of **restricted gifts**, where the corpus is to be maintained for a specific purpose and the income generated from the corpus is used to finance projects (e.g., scholarships).

A **foundation** is a nonprofit fund established for charitable purposes to support specific types of activities. The four primary types of foundations are operating, community, corporate, and independent.

- **Operating foundations.** Similar to endowments where investment income used to fund operating expenses of the organization.
- **Community foundations.** Focus on a specific geographical region and distribute amounts to local charities and other causes.
- **Corporate foundations.** Funded by corporations and other employees, and typically fund local charities.
- **Independent foundations.** Funded by an individual or family and typically consist of a one-time gift.

Endowments tend to survive in perpetuity, while foundations often have limited lives. Endowments have discretion in setting their spending limits, while foundations are required to spend at least 5% annually. The spending requirement has the effect of shortening the life of a foundation.

Maintaining Intergenerational Equity

Intergenerational equity refers to balancing the current spending needs (based on percentage of assets) with future spending needs. Expressed as a 50% chance that the real value of the endowment will be maintained in perpetuity, such that a higher (lower) percentage would yield an advantage to the future (current) generation. A low current **spending rate** benefits future generations, while a high current spending rate benefits current generations.

Changes in portfolio value are calculated as follows:

$$\begin{aligned}\text{change in value} = {} & \text{income from gifts} - \text{spending} \\ & + \text{net investment returns}\end{aligned}$$

Methods for computing the spending rate include (1) fixed percentage, (2) inflation-adjusted, (3) trailing market value, and (4) hybrid approach.

Endowments and foundations must generate returns in excess of inflation to maintain the capital base and provide ongoing grants on an inflation-adjusted basis. A return target is set

to exceed the growth rate of costs to preserve current spending. Foundation return targets are harder to meet than endowment return targets due to the spending requirement associated with foundations.

Endowment Model

The **endowment model** considers the need to meet high return targets in order for the endowment to exist in perpetuity. David Swensen, the chief investment officer (CIO) of Yale University since 1985, pioneered the endowment theory, arguing that endowments can obtain higher returns through diversification and an equity tilt, focusing on assets with higher expected returns such as alternative assets.

Endowment and foundation assets include the following:

- Alternative assets constitute a large percentage of asset allocations. The trend is a lower allocation to domestic equities and a higher allocation to hedge funds, private equity, venture capital, and natural resources.
- Equities.
- Domestic government bonds provide liquidity and serve as a tail risk hedge during market events.

Assets to be minimized or eliminated include the following:

- Corporate bonds (low incremental returns over the risk-free rate, value loss and illiquid during crisis periods).
- Foreign fixed-income investments.

Outperformance of Large Endowments

Investment return attribution comes from three areas:

- *SAAs*. Target long-term asset allocation weights multiplied by benchmark returns for each asset class.
- *Security selection*. Asset class return relative to a benchmark.
- *Market or tactical asset allocation (TAA)*. Earning excess returns by using asset class weights that differ from target asset class weights.

The outperformance of large endowments can primarily be attributed to the following six factors:

1. *Aggressive allocation strategy.* This involves (1) investing in alternatives in large amounts relative to smaller endowments and pension funds, (2) **rebalancing** through selling a portion of outperforming assets and buying additional underperforming assets to return the portfolio to its target allocations, and (3) buying undervalued assets.
2. *Effective investment manager research.* Allocating assets to the best managers in each asset class (e.g., alternative asset managers actively managing in less efficient markets).
3. *First-mover advantage.* The **first-mover advantage** refers to the fact that top endowments invested in alternative investments much earlier than their peers did.
4. *Network effect.* The **network effect** refers to an endowment having access to talented alumni (e.g., there is a strong correlation between the most successful hedge fund managers and the most prestigious universities).

5. *Acceptance of liquidity risk.* An **illiquidity premium** may be earned by investing in a relatively illiquid investment (due to long or perpetual holding periods, few liabilities, and no spending requirements).
6. *Sophisticated investment staff and board oversight.* Large endowments are often composed of experienced staff, which allows them to manage assets internally as well as ensure competent investment manager recommendations. **Nondiscretionary investment consultants** may also be utilized to provide recommendations on asset and manager selection.

The **outsourced CIO (OCIO) model** is gaining popularity for smaller endowments, as external consultants have the power to make decisions on asset and manager selections without direct involvement of the investment committee.

Risks of the Endowment Model

The issue of intergenerational equity arises due to the competing tensions between spending rate, portfolio risk, and preservation of capital. Low returns and the 1972 Uniform Management of Institutional Funds Act, which allowed spending rates to be determined on the basis of portfolio total return, led to a **total return investment approach**, which uses both current income investments (e.g., fixed-income securities) and capital appreciation investments. Investments in real assets have increased. Real asset values increase with inflation, thus serving as an inflation hedge (indicated by positive **inflation betas**, which shows the sensitivity of an asset's returns to inflation). The OCIO model is gaining popularity for smaller endowments, as external consultants have the power to make decisions on asset and manager selections without direct involvement of the investment committee.

An endowment's **liquidity** can be described as its ability to continue its investment strategy and disburse cash outflows (e.g., annual spending and capital calls) in the absence of significant losses. Consequently, if the maturity of an endowment's assets and liabilities is mismatched, then **liquidity risk** exists. The sum of the size of potential capital calls from recent commitments and the size of private equity and real estate partnership investments gives a sense of an endowment's illiquidity risk. An **overcommitment strategy** involves committing more capital than needed, assuming not all of it is called.

Endowments are able to handle substantial illiquidity risk and, in return, earn a large positive illiquidity premium on their investments. However, during the recent credit crisis, many endowments did not have proper liquidity risk management and were forced to sell illiquid assets at severe discounts, postpone crucial investments, and take on debt financing.

Another tactic for coping with illiquidity risk is **liquidity-driven investing**, which explicitly matches the liquidity of investments to the investor's time horizon using a tiered system. Figu re 1 summarizes the investment tier classifications of the liquidity-driven investment method.

Figure 1: Liquidity-Driven Investing Tiers

Classification	Relative Risk and Liquidity	Examples of Investments
Tier 1 assets	Low risk and very liquid	Short-term fixed income
Tier 2 assets	Risky and liquid	Equities
Tier 3 assets	Risky and illiquid	Private equity and hedge funds

There is always a tradeoff between "cash drag" (because cash earns virtually no income) and the relatively high total return targets of the portfolios that necessitate high allocations to

alternative investments.

Validity of Endowment Model

The lackluster performance of the endowment model during the recent financial crisis has caused an examination of the model's usefulness as a future strategy.

The argument that the endowment model is *no longer valid* includes:

- As a result of the severe liquidity squeeze during the recent financial crisis, portfolios must become more liquid. Therefore, greater allocations to cash and fixed income and smaller allocations to illiquid private equity and real estate partnership investments are required.
- Within alternative investments, there should be greater allocations to more liquid investment types (e.g., equity hedge funds) and smaller allocations to illiquid types (e.g., private equity).

The argument that the endowment model is *still valid* includes:

- Once a few adjustments to liquidity are made, the endowment model (i.e., high allocation to alternative investments) is stronger than ever (given its ability to generate high returns over the long term).
- Prior problems with insufficient allocation to cash and fixed income are correctable through slight modifications to allocation levels and can also be achieved by having new external credit lines in place.

Liquidity Rebalancing and Tactical Asset Allocation

Rebalancing a portfolio involves maintaining the asset weights consistent with the long-term SAAs. Rebalancing can be done on a set calendar basis or based on a comparison between actual portfolio asset composition versus long-term strategic composition.

Some endowments use TAA for a portion of their portfolios. The **tactical asset allocation (TAA)** model is useful in that it is able to use valuation, fundamental, macroeconomic, and price momentum data. The TAA model can be contrasted with SAAs in two major ways:

- The TAA model deliberately drifts from the target weights in an effort to reap excess returns or reduce risk.
- The TAA model sees asset classes from a shorter term (e.g., 1 year versus 10 years) and somewhat contrarian perspective.

Tail Risk

Tail risk refers to the potential occurrence of an event that causes a severe decline in portfolio value with returns occurring in the extreme left tail (i.e., large negative returns) of the distribution of returns. Avoiding tail risk requires the endowment to invest in specific assets that will be shielded from losses (and possibly even increase in value) during a financial crisis.

Methods for avoiding tail risk include:

- Reallocate funds away from alternative investments and into cash and risk-free debt. However, low-risk investments have low returns and an inability to outpace inflation; thus, this method is not commonly used by endowments.

- Estimate the portfolio's equity exposure (as measured by equity beta) in both normal and extreme market conditions and then use **equity options hedges** (e.g., equity put options) to reduce risk exposure.
- Buy put options on currency, commodity, and credit markets and buy call options on volatility indices when they are underpriced and sell them when they are overpriced.
- Consider allocations within individual asset classes to reduce losses in times of crisis (e.g., within the fixed-income asset class, using high-quality bonds rather than corporate bonds decreases tail risk). This option may be less successful than buying put options but is also less costly.

READING 2.3: PENSION FUND PORTFOLIO MANAGEMENT

Development, Motivations, and Types of Pension Plans

Pension plans are portfolios of financial assets designed to provide income to plan participants during their retirement (i.e., deferred compensation). Employers are able to hire and retain key talent due to offering pension plans, while employees appreciate the employer contributions toward their retirement. To ensure adequate funding levels, pensions must estimate the expected mortality of plan participants. Mortality risk is defined as the risk of individuals dying sooner than expected on average. Longevity risk is the risk of individuals surviving longer than expected on average.

Pension plan types include:

- **Defined benefit (DB) plans** are traditional pensions where the retirement benefit is predetermined.
- **Defined contribution (DC) plans**, in which the employer and the employee both contribute, and whatever the employee has by the time she retires is what she is entitled to receive (e.g., 401(k) and 403(b) plans).
- **Government Social Security plans** are similar to a DB plan except individuals pay into the government system through taxes.

A **cash balance plan** is a hybrid DB plan that maintains individual account records for plan participants.

Risk Tolerance and Asset Allocation

For a DB plan, the primary objective is to pay the promised benefits at the promised time. The **retirement income-replacement ratio** is the percentage of preretirement income replaced by an income source during retirement. Risk (i.e., standard deviation of returns) for a DB plan should be kept at a level that the plan sponsor can tolerate but that will attempt to meet the return objectives as well.

Three approaches to risk measurement for a DB plan are the following:

- **Asset-focused.** This approach considers only the risk of the plan's assets. Managers determine an optimal allocation to risk-free assets (cash and cash equivalents) and risky assets.
- **Asset liability.** Along with its assets, a plan has liabilities, which are its promised benefits payable. The plan's **funded status** is the difference between its assets and present value of its liabilities. A positive difference is called a **pension surplus** (overfunded), while a

negative difference is called a *shortfall* or a *deficit* (underfunded). Using the asset-liability perspective, the risk of DB plan assets is measured as the volatility of its surplus. An asset that has high volatility but is positively correlated with plan liabilities may be viewed as having lower risk.

- **Integrated asset liability.** This approach integrates the plan's funded status with the operations of the plan sponsor. All else equal, plan assets that have low correlations with operating assets and high correlations with operating liabilities are the lowest risk for the plan.

Effect of Liabilities on Pension Plan Risk

At their core, plan liabilities are the obligation to make timely benefit payments to participants. The four key factors that affect the risk of plan liabilities include the following:

- **Interest rate changes.** A decrease in interest rates will increase the present value of projected future liabilities.
- **Inflation.** If inflation increases, expected future benefit payments increase.
- **Retirement cycle.** The trend of when participants retire and become benefit recipients is fairly predictable.
- **Mortality rate.** Although predictable, the longer-term concern is declining mortality, which means increasing longevity and greater benefit obligations.

Factors Affecting Sponsor Risk Tolerance

A plan sponsor needs to consider the following five key factors in addressing its risk tolerance:

- *Funding status of the plan.* In general, an underfunded plan should be taking less risk.
- *Fund size.* A large plan has more assets and potential capacity to buffer financial losses than a smaller plan.
- *Expected future contributions.* Relative to the sponsor's cash flow trends. The plan can sustain higher risk if free cash flow is growing substantially.
- *Sponsor's general financial position.* As measured by expected future free cash flows and the debt-to-equity ratio, for example. Sponsors with high debt levels should have a lower risk level for their plan assets.
- *Participant demographics*. If the pool of participants is a younger group of individuals, then plan assets can be riskier because there is more time on average until plan liabilities are expected to be paid.

SAAs: Two Buckets

Using an asset-liability framework, we can separate plan assets into two strategic buckets: a *growth bucket* and a *hedging bucket.*

The **growth bucket** is designed to allocate surplus assets to riskier investments. The goal of the growth bucket is to outperform the growth rate in plan liabilities and reduce the need for future contributions into the plan by the sponsor.

The goal of the **hedging bucket** is to track the plan's liabilities and to minimize volatility of the fund's surplus. This bucket will generally hold assets that are negatively correlated with

interest rates, positively correlated with inflation, and positively correlated with population longevity. Hedging may use the following approaches:

- **Duration-matching approach.** Managers would directly match the duration of plan assets with the duration of plan liabilities (targets interest rate risk).
- **Cash-flow-matching approach.** This involves directly matching the planned future cash flows from plan assets with planned needs from the plan liabilities.
- **Overlay approach.** The plan sponsor will use derivative securities to create the required hedges. While the approach may increase the plan's leverage, the sponsor can manage the hedging bucket without having to sell assets from the growth bucket.

DB Plans

A DB plan requires the employer to provide a stated retirement benefit to its retirees. Therefore, the employer bears all the risk of generating sufficient investment returns to provide the promised benefits. DB plans cease to accumulate benefits upon termination of employment and may not be transferred to the new employer (i.e., not portable). The sponsor must consider employee turnover, estimated years of service, estimated average monthly compensation upon retirement, and mortality rates when determining the amount of plan assets needed to pay future benefits. DB plans are not **portable** and cease to accumulate upon employment termination—they cannot be transferred to a new employer.

Many employers have a required vesting period that must be met before an employee qualifies for retirement benefits. Affordability, extensive disclosure, pension deficits, and lack of portability have all contributed to the decline of DB plans over time. Historically, the high returns required on pension assets resulted in higher asset allocations to equities and lower allocations to fixed-income securities. However, in the last decade, allocations to equities have been reduced somewhat to allow for allocations to alternative investments.

DB plan terminology includes the following:

- **Accumulated benefit obligation (ABO).** Equal to the present value of the benefits earned by employees (based on current salaries) and retirees.
- **Projected benefit obligation (PBO).** Equal to the present value of the future benefits to be paid (i.e., the ABO plus assumed future benefits to be paid to retirees).
- **Funded status.** Equal to the current market value of plan assets minus PBO.
- **Required return assumption.** Used to compute the employer's contribution, and also serves as a benchmark for actual returns and asset allocation.
- **Surplus risk.** Deviation in the value of assets versus the present value of the liabilities.
- **Liability-driven investing (LDI).** Designed to reduce surplus risk (i.e., volatility) in DB plans by ensuring that the DB plan's asset returns are highly correlated with the change in value of its liabilities.
- **Frozen pension plan.** The plan no longer accrues benefits past the date of freezing, but previously accrued benefits will still provide income to retirees (e.g., an employee could work 10 years, the plan is frozen, then work 15 more years to retirement; benefits would be based on 10 years of service).
- **Terminated pension plan.** The sponsor is no longer responsible for pension obligations.
- **Cost of living adjustment (COLA).** Benefits increase with inflation during retirement. The COLA should be hedged with **inflation-protected bonds** such as Treasury Inflation-

Protected Securities (TIPS) which earn a set coupon and have principals that increase with inflation.

Governmental Social Security Plans

Any employee who has worked a sufficient number of years (e.g., 10 years in the United States) and has contributed to Social Security over those years is eligible for Social Security benefits. Such benefits are usually portable in that they are tied specifically to the employee, not the employer. Social Security benefits will increase with income up to a certain point. Employees who earn high salaries will have their benefits capped. This is known as a **progressive system** because higher-salary employees receive benefits that are a smaller percentage of their salary compared to lower-salary employees. Therefore, the retirement income-replacement ratio will be lower for highly paid employees. This differs from DB plans where income levels are positively correlated to the size of benefits.

Differences Between Defined Benefit and Defined Contribution Plans

A DC plan only requires the employer to provide a stated contribution to its employees' retirement accounts. Often, this is in the form of a **matching contribution**. An important benefit of DC plans is their *portability* (i.e., the value of the portfolio can be rolled over to a new employer's plan or to an individual retirement account). In a DC plan, the employer bears none of the investment risks of DB plans and all risks are borne by the employees. Unlike DB plans, DC plans are unlikely to have direct access to alternative investments. DC plans may be passed to the participants' heirs if not fully spent in retirement.

While DC plans allow individuals to customize their asset allocation (albeit with limited choices), the lack of professional management can lead to a **drifting asset allocation**. **Target date funds**—an alternative to merely cash—may help remedy this problem. These funds follow a **glide path**, which involves a process where allocations automatically shift from more to less risk as the retirement date gets closer.

Figure 2 provides a comparison of DB and DC plans.

Figure 2: DB vs. DC Plans

	DB Plan	DC Plan
Portability	Not portable	Portable
Payment/terminal value	Benefit paid until death	Terminal value not guaranteed
Vesting schedule	Yes	Yes
Assets to heirs	No, benefits terminate with death of employee	Yes, if employee dies before receiving all of plan benefits
Investment risk	Borne by employer	Borne by employee
Longevity risk	Borne by employer	Borne by employee
Possibility of outliving benefits	No (unless the plan is terminated)	Yes, if employee has low savings rate, low investment returns, or lives longer than expected
Investment decisions	Made by employer	Employer provides options (e.g., mutual funds) and participant makes asset allocation decisions within the options
Performance (1997–2011)	Outperformed DC by 1.4% annually	Underperformed DB by 1.4% annually
Drifting asset allocation	Less likely	More likely (**target date funds** offer easy allocation tied to retirement date)

Retirement Phases and Risks

From the perspective of retirement planning, we can classify an individual's working life as the **accumulation phase**, during which spending should be less than income so the individual can accumulate assets for retirement. The period after retirement is the **decumulation phase**, during which the individual will draw down these assets, along with other sources of income such as pension benefits.

Three important risks that retirees face are as follows:

- *Longevity risk*: assets run out because an individual lives longer than expected.
- *Market risk*: low or negative returns deplete assets faster than planned.
- *Inflation risk*: the purchasing power of a fixed spending amount decreases.

Exposure to Longevity Risk

To estimate an individual's remaining expected life, statisticians developed mortality tables. **Mortality tables** show an individual's expected remaining years based upon attaining a given age. Individuals can estimate exposure to longevity risk by comparing their expected life span to the expected economic life of their asset portfolios. Investors can estimate the **expected economic life** using the formula shown as follows. Return (R) is the expected after-fee investment return after inflation (i.e., the real return after fees). Payment is annual spending in the first year of retirement, which is expected to increase at the rate of inflation. Assets represent the value of the portfolio.

$$EL = -\frac{1}{\ln(1+R)} \times \ln\left[\frac{\text{payment} - (R \times \text{assets})}{\text{payment}}\right]$$

The two primary types of annuities are immediate annuities and deferred annuities.

- An **immediate annuity** requires an investor to deposit a lump sum payment with an insurance company in return for a stream of cash flows that begin in the first year of the policy.
- A **deferred annuity** also requires paying a lump sum to an insurance company now, but the assets grow at a specified rate until a future date when the deferred annuity is converted into an immediate annuity and payments begin.

The value of an annuity with a fixed annual payment is equal to the present value of the fixed payments (i.e., the present value of an ordinary annuity).

$$PV_{\text{ordinary annuity}} = \frac{\text{payment}}{r} \times \left[1 - \frac{1}{(1+r)^n}\right]$$

The present value of a **growth (growing) annuity** is used to find the value of a deferred annuity.

$$PV_{\text{growth annuity}} = \frac{\text{initial payment}}{r-g} \times \left[1 - \left(\frac{1+g}{1+r}\right)^n\right]$$

READING 2.4: SOVEREIGN WEALTH FUNDS

Sources of Sovereign Wealth

Sovereign wealth funds (SWFs) are large, state-owned investment funds that exist to benefit future governmental spending needs and possibly to stabilize currencies. At the end of 2018, SWFs controlled almost $8 trillion in assets, which is about equal to the assets under management of all hedge funds and private equity funds combined. The source of funds for SWFs comes from budgetary surpluses at the national level. This money most often comes from natural resources, such as oil and gas, but it may also come from persistent trade surpluses and possibly the receipt of foreign aid that was not used immediately.

SWF terminology includes:

- The **reserve account** holds national government foreign currencies, usually managed by the central bank. The reserve account is affected by inflows and outflows of currencies that result from international trade and capital flows.
- The **current account** measures trade in goods and services. A country that exports more goods and services than it imports is said to have a *current account surplus*, while a country that imports more than it exports is said to have a **current account deficit**.
- The **capital account** measures cross-border investment, such as loans or purchases and sales of assets. Net inflows of capital into a country are referred to as a **capital account surplus**, while net outflows of capital are referred to as a **capital account deficit**. A current account deficit (net outflows) tends to be associated with a capital account surplus, and a current account surplus tends to be associated with a capital account deficit.
- The current account, capital account, and reserve account are referred to as a country's **balance of payments** accounts. In the aggregate, the relationship can be stated as:

$$\begin{aligned}\text{change in reserve account} = {} & \text{change in current account} \\ & + \text{change in capital account}\end{aligned}$$

A country's currency will tend to appreciate if the country has

- low inflation compared to other countries,
- high real interest rates compared to other countries,
- policies that attract capital inflows,
- slow income growth compared to other countries (less demand for imports), and
- a comparative advantage in the production of goods for export.

A longer-term concern for commodity-exporting countries is **depletion**, which is when natural resources run out at some point in the future.

Types of SWFs

SWFs may be classified into four broad categories:

1. **Stabilization funds.** Some countries (usually commodity-rich countries) choose to hold excess reserves in a SWF rather than at their central bank. They do not want government spending to be high in good years and low in bad years because this would make business cycles even more volatile. Establishing a stabilization fund enables the country to draw needed funds when commodity prices are lower. Stabilization funds invest largely in fixed-income securities.
2. **Savings funds.** This fund type has a total return-investing objective with the goal of preserving and growing principal from commodity- or export-driven profits for the benefit of future generations. The greatest proportion of investments is in equities.
3. **Reserve funds.** This category has two types of funds: (1) **pension reserve funds**, which have a specific goal similar to a traditional pension fund (i.e., to pay future retirement benefits of a country's citizenry) except the source of funds is export revenue and (2) **reserve investment funds**, which is included in the country's reserves but invests with a total return objective.
4. **Development funds.** These funds have objectives that may include diversifying the domestic economy, developing strategic industries, or addressing poverty. Development funds are more likely to invest in concentrated positions and alternative assets than other SWFs, in some ways resembling private equity or venture capital portfolios.

Establishing and Managing SWFs

There are four primary reasons for a country to establish a sovereign wealth fund:

- Insulate the country's fiscal budget from volatility.
- Enable a central bank to offset excess liquidity.
- Accrue benefits for future generations.
- Invest in domestic infrastructure and other initiatives that contribute to long-term economic growth.

Dutch disease occurs when an inflow of foreign currency damages the long-run health of a local economy. **Sterilization** is typically implemented by one of the two following methods, depending on the reason for the currency inflows:

- To prevent continued currency appreciation, inflows may result from the central bank intervening in the foreign exchange markets.
- If the industries (e.g., commodities) into which excess foreign currency (export-driven or commodity-driven) is flowing are state-owned, the government itself will hold the excess

currency.

There is clear evidence that sovereign wealth fund formation is directly linked to commodity prices. Stabilization funds are vulnerable to **conservative investment opportunity costs**, which are the opportunity costs associated with investing excess funds too conservatively when the funds have grown larger than intended. An estimation of **reserve adequacy**, which is the amount necessary to offset commodity price volatility and other potential sources of shocks, is recommended for stabilization funds.

Governance and Political Risks

SWFs are exposed to substantial political risk. Corrupt government officials might use SWF assets to direct money to personal projects or even steal them outright. A government that advances **protectionist policies** to shield domestic companies from foreign competition (i.e., quotas, tariffs, or direct subsidies from the government) may also wish to interfere with an SWF's investment choices.

The Sovereign Wealth Fund Institute created an index, the **Linaburg-Maduell Transparency Index**, which can be used to measure the transparency of an SWF. The index consists of 10 core principles of transparency, ranging from the transparency of data regarding the source of funds to whether the SWF maintains a website. At least 8 out of 10 principles must be met in order for an SWF to claim adequate transparency.

1. Does the SWF provide historical data on its formation, source of funds, and governmental ownership structure?
2. Does the SWF provide current and independent audits of its annual reports?
3. Does the SWF disclose ownership percentages in portfolio companies and the geographic location of its holdings?
4. Does the SWF provide total portfolio market value, actual returns, and management fees?
5. Does the SWF provide guidelines for internal ethical investing and enforce its policy?
6. Does the fund disclose clear strategies and objectives?
7. Does the fund clearly identify any subsidiaries and any relevant contact information?
8. Does the SWF clearly identify any external managers (if applicable)?
9. Does the SWF manage its own website?
10. Does the SWF provide contact information and the location of its main office?

In response to potential governance issues, the International Working Group created a generally accepted principles and practices for SWF governance known as the **Santiago Principles**. Principles include acceptable governance and accountability, a well-defined objective, a clear investment policy, a transparent operational control and risk management system, and a rigorous legal framework.

SWF Management Examples

The Norwegian Government Pension Fund Global is funded by oil revenues and managed as a perpetual endowment. The fund is recognized as a model for governance and transparency. The **Norway model** focuses on a diversified portfolio of liquid, public securities.

China Investment Corporation is operated as a reserve investment fund and is an active investor in equities. The fund has significant holdings in China's state-run banking sector and

an increasing allocation to private equity. Transparency and political risk are concerns for the fund.

Temasek Holdings is a development fund sponsored by the government of Singapore and was originally funded by privatization revenue. Temasek's asset holdings are largely concentrated within Singapore and elsewhere in Asia.

READING 2.5: FAMILY OFFICES AND THE FAMILY OFFICE MODEL

Identifying Family Offices

A **family office** is essentially a managed pool of capital that is owned by one individual or by a small group of individuals. Think of this as a private wealth advisory firm that is established by an ultra-high net worth individual to manage the individual's own assets. A **single-family office** is dedicated to either a single individual or a single family, while a **multifamily office** will pool several families' assets together, with each family typically being an **ultra-high-net-worth family** having at least $30 million of investable assets. The purpose of pooling assets is to share operating expenses and create economies of scale with larger investments.

Competitive Advantages

Family offices have 10 key competitive advantages:

1. Aggressive asset allocation
2. Capturing liquidity premiums
3. Decision-making speed
4. Direct investment opportunities
5. Asset governance and management
6. Alignment of interests
7. Lower costs and higher returns
8. Centralized risk management
9. Centralized provision of services
10. Management of lifestyle assets in the portfolio context

Goals, Benefits, and Business Models

Family offices have diverse goals, benefits, and business models. Their goals could include intergenerational wealth transfer, philanthropy, or ensuring a certain lifestyle for the family members. Confidentiality is a key benefit of a family office due to the inherent privacy of its structure. The Dodd-Frank Act eliminated the safe harbor that used to benefit family offices. In this context, the term *family* is now defined as direct bloodline to the founder of the family office or the spouse of a direct descendant. The additional regulatory hurdles can double the annual management costs of a family office.

Generational Family Office Goals

The original source of the family office's assets is referred to as **first-generation wealth** or **new money**. The source of funds for the first generation may be a **liquidity event** like the sale of a privately held business. One issue that may be faced by a family office is

concentrated wealth, which occurs when a large majority of the family's holdings are in a single company. Subsequent generations (**old money**) tend to be more concerned with the use of the wealth.

Some executives may refrain from selling shares they own in their own companies due to fear over timing restrictions, tax consequences, or negative signaling. When sales do occur, the proceeds may be deposited into a **completion portfolio**, which is designed to own assets uncorrelated with their concentrated positions.

Many family offices choose an absolute return benchmark when the key goal is to offset the risk of a concentrated position. This can be accomplished through allocations to assets such as hedge funds, fixed income, and other assets with a low correlation to the market and to the family member's company. The family office should have a low allocation (if any) to private equity, which often has a higher correlation with the market. The most typical benchmark is Treasuries plus a fixed percentage.

While the first generation will be more concerned with lower-risk wealth preservation, the second and later generations will likely be more concerned with wealth generation and growth. The most common long-term investment added to a second-generation family office is private equity. Many family offices maintain a credit line at a bank for short-term liquidity needs. In sum,

- first-generation family offices generally have a goal of not losing any of the hard-earned wealth that has been accumulated, and
- second-generation family offices are typically focused on wealth generation and growth to meet the family's spending goals and longevity needs.

Macroeconomic Exposure

Macroeconomic factors such as real returns, inflation, growth, and the risk premium have a significant impact on asset returns for family offices. These factors impact the goals of family offices, which can include lifestyle maintenance, increasing wealth, and philanthropic desires.

Income Taxes

Because family offices are taxable entities, they are concerned with the tax efficiency of their strategies. **Tax efficiency** relates to the after-tax returns of their investment ideas. Dividends are taxed at ordinary income tax rates, and capital gains from asset sales or capital distributions are generally treated more favorably with a lower tax rate.

In the United States, the highest tax rate is applied to ordinary income (wages), dividends, and **short-term capital gains** (realized trading profits from an investment held for one year or less). **Long-term capital gains** (realized profits from an investment held for more than one year) are taxed at lower rates. **Section 1256 contracts** are taxed in a hybrid form, where 60% is taxed at the lower long-term capital gains rate and 40% is taxed at the higher short-term rate.

Lifestyle Assets

Lifestyle assets (also called **passion assets**), which include items such as artwork, wine, and cars, are used to varying degrees by family office managers. An important aspect of lifestyle assets to consider is the cost of ownership. Financial assets such as stocks and bonds have little or no storage costs associated with them. For art investors who do not display their

art, the investor can store it in a **free port**, which is a climate-controlled, secure facility dedicated to the storage of art and other high-value physical assets.

Lifestyle assets, however, may be costly in terms of insurance, physical storage, security, and maintenance. To offset these costs, some investors try to generate cash flow (e.g., leasing artwork). One portfolio management technique is to classify lifestyle assets as an asset allocation that is expected to remain constant, with the rest of the family office holdings managed as **balanced portfolios**, with one devoted to wealth distribution goals and another devoted to wealth accumulation goals.

Purchasing and managing lifestyle assets falls under **concierge services**. A list of concierge services could include personal shopping, art curation, travel arrangements, purchasing cars and yachts, and so on.

Governance

There is no one-size-fits-all structure for family office governance. First-generation offices are typically controlled by the patriarch/matriarch of the family's wealth. A more formal structure tends to develop when the family office transitions to the second generation and beyond.

There is an age-old question of **dynastic wealth**: Can it last more than three generations?

Four primary factors work against wealth lasting over multiple generations:

1. A growing number of descendants dilutes the wealth into smaller portions.
2. Succeeding generations may lack the skill or inclination to operate the dynastic business.
3. Succeeding generations may be unprepared to be productive members of the family office.
4. The family office might have a philanthropic focus that redirects family assets to benefit society as a whole.

One strategy to overcome the depletion risk for dynastic wealth is to formally turn the family office into a multigenerational trust (i.e., to a team of professional managers). To work well, the **beneficiaries' spending rate** must not exceed the rate of return earned by the trust. **Inheritance** is the distribution of wealth after the death of the previous generation. **Succession planning** is important both for a family office and if an ongoing family business exists.

Charity and Philanthropy

Family estate planning refers to strategizing the transfer of wealth when one generation passes away and leaves assets to a subsequent generation. **Estate taxes** are levied by most governmental jurisdictions when assets are left to a family member, but assets can typically be given estate tax-free to institutions seeking the betterment of society.

A key distinction needs to be made about whether a given donor wants to be charitable or philanthropic.

- **Charity** is the giving of money or time in an attempt to meet an immediate need, without holding its recipients to accountability.
- **Philanthropy** is the giving of money or time with the intention of making a lasting change. The goal of philanthropy is to solve a problem and make a permanent change in society.

Individual Investors

A **goals-based investment approach** accounts for varying time horizons, constraints, and myriad individual goals. **Behavioral biases** lead to mental accounting, which categorizes assets and risks instead of viewing them as a collective portfolio. During the **accumulation phase** of the financial life cycle, the goal is to grow assets through investment contributions and earnings to meet future obligations and goals. During the **decumulation phase** of the financial life cycle, investors are withdrawing assets to cover current obligations.

Individual investors define risk with a focus on the loss of capital and are subject to **sequence of returns risk**, which relates to the order and timing of an investor's returns. **Tax planning** is critical to private wealth investors, and advisors may utilize tax location strategies to allocate assets and investments into different tax structures to minimize the tax impact on the investor's portfolio. Individual investors tend to have finite time horizons, constraints on borrowing, and emotional ties to their assets and wealth that are not found with institutional investors.

Individual investors may gain access to alternative investments, but they typically do not have the scale needed to attain the lower expense ratios and ideal level of diversification that institutional investors can. This often leads to private wealth management clients having lower percentage allocations than institutional investors.

ASSET ALLOCATION

Readings 3.1–3.5

Weight on Exam	8%–12% (Multiple Choice) 0%–10% (Constructed Response)
SchweserNotes™ Reference	Book 1, Pages 137–255

Mean-variance optimization (MVO) and its application to the asset allocation process is an important area of focus in the Level II curriculum, as are several other approaches to asset allocation. The newer concepts in this topic are the total portfolio approach (TPA) and active management. Understand tactical asset allocation (TAA) and how it differs from strategic asset allocation (SAA).

READING 3.1: ASSET ALLOCATION PROCESSES AND THE MEAN-VARIANCE MODEL

Asset Allocation and Mean-Variance

Two high-level types of asset allocation are **strategic asset allocation** (which is long term in nature and focuses on long-term goals and risk preferences) and **tactical asset allocation** (which is short term and opportunistic).

Modern portfolio theory (MPT) is an asset allocation theory based on mean-variance optimization, which finds that assets with less-than-perfect correlation can be combined to enhance portfolio diversification. One investment can **dominate** another investment if it has the same risk level but a higher return or if it has the same return level but lower risk.

Utility is a measure of satisfaction with investment returns. **Expected utility** is the probability-weighted average utility of all possible outcomes, and a **utility function** is a formula that quantifies the relationship between investment outcomes and investor utility. The expected utility for a two-outcome sequence is shown as follows:

$$E[u(w)] = [\pi_1 \times u(w_1)] + [\pi_2 \times u(w_2)]$$

An investor is **risk averse** if her utility function follows a concave pattern where the graph has an initially steep slope that gradually decreases. A risk-neutral investor has a linear utility function.

The utility function can be expressed in terms of expected returns and variance as follows, with lambda representing the **degree of risk aversion**, which quantifies the risk/reward tradeoff for an investor and assuming returns are normally distributed:

$$E[u(w)] = \mu - \left(\frac{\lambda}{2} \times \sigma^2\right)$$

If returns are not normally distributed and skewness (S) and excess kurtosis (K) exist, the expected utility function is calculated using the following formula:

$$E[u(w)] = \mu - \left(\frac{\lambda_1}{2} \times \sigma^2\right) + (\lambda_2 \times S) - (\lambda_3 \times K)$$

Assumed investor preferences are that investors dislike variance, like positive skewness, and dislike kurtosis.

The expected utility function can be extended to value at risk (VaR) per the following formula:

$$E[u(w)] = \mu - \left(\frac{\lambda_{VaR}}{2} \times VaR_{\alpha}\right)$$

Risk aversion can be calculated as a function of expected excess return on an optimal portfolio and the portfolio's variance as shown here:

$$\lambda = \frac{E(R_p) - R_f}{\sigma_p^2}$$

For institutional investors who invest in assets to generate income to fund future obligations, the expected utility function can extend to incorporate the value of invested assets (V), the present value of liabilities (L), and the growth rate for liabilities (G) as shown here:

$$E[u(w)] = \left[V \times E(R_p)\right] - \frac{\lambda}{2} \times \sigma_p^2\left[(V \times R_p) - (L \times G)\right]$$

Mean-Variance Optimization (MVO)

A portfolio consisting of risky and riskless portfolios in N + 1 asset classes will have a rate of return equal to:

$$R_p = w_0R_0 + w_1R_1 + \cdots + w_NR_N$$
where:
$$w_0 + w_1 + \cdots + w_N = 1$$

If the weight of the riskless asset is equal to one minus the sum of the risky assets, the equation is equal to:

$$R_p = w_1(R_1 - R_0) + \cdots + w_N(R_N - R_0) + R_0$$

For a portfolio with one risky asset and a riskless asset, the risky asset's weight would be optimized using the following equation:

$$w = \frac{1}{\lambda}\frac{E[R - R_0]}{\sigma^2}$$

To apply MVO to a portfolio with growing liabilities, the previous equation can be adapted as follows to account for the covariance between growth rates in liabilities and assets and the size of the liabilities relative to the assets:

$$w = \frac{1}{\lambda}\frac{E[R - R_0]}{\sigma^2} + L\frac{\delta}{\sigma^2}$$

MVO With Multiple Risky Assets

The **efficient frontier** represents a boundary where no portfolios can be created that have the same return but lower standard deviations than those on the efficient frontier. Also, no portfolios can be created with the same standard deviations but higher returns. The optimal portfolio for a given investor will depend on his degree of risk aversion.

MVO With Hurdle Rates

The **hurdle rate** is the minimum expected return necessary for inclusion in an optimal portfolio. Including a new asset to the portfolio will increase expected utility as long as the return on the new asset exceeds the hurdle rate. The new asset can be added assuming the following function holds:

$$E[R_{New}] - R_f > [E(R_p) - R_f] \times \beta_{New}$$

Optimization Issues With Portfolio Selection

For the mean-variance model, the estimated returns and the variance-covariance matrix must be accurate. They often produce extreme weights for the portfolio and are sometimes called error maximizers. The estimated mean is susceptible to inaccuracy and is the most influential input in the mean-variance optimization. Also, risk and return change over time.

Although increased frequencies of observation can improve estimates of variance and covariance, this is often not available for alternative assets. Assets are often overweighted through the optimization process, as low volatility and correlation assets are given large weights. Another issue is the challenge with estimating covariance when the group of possible investments becomes large.

While MVO's reliance on means and variance for analysis is acceptable if the returns are normally distributed, alternative investments create challenges due to skewness and excess kurtosis. To alleviate potential bias toward negatively skewed assets, change the optimization process, add constraints, and limit the weights applied to assets with higher moments.

Mean-Variance Adjustments for Illiquidity

There are two types of liquidity risks:

- **Market liquidity risk:** when an investor is forced to sell a financial asset that is not actively traded.
- **Funding liquidity risk:** when a borrower is forced to sell assets due to an inability to cover a debt obligation payment.

The liquidity penalty function modifies the mean-variance optimization framework to adjust for a liquidity measure, which exists along a spectrum of 0 (perfectly liquid) to 1 (perfectly illiquid).

$$L_p = \sum_{i=1}^{N} w_i L_i$$