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EXAM PREP

SchweserNotes[™]

Portfolio Construction and
Performance Measurement

Level III Book 2

KAPLAN[®] SCHWESER

Book 2: Portfolio Construction and Performance Measurement

SchweserNotes™ 2027

Level III CFA®



SCHWESERNOTES™ 2027 LEVEL III CFA® BOOK 2: PORTFOLIO CONSTRUCTION AND PERFORMANCE MEASUREMENT

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- b. describe how an equity manager's investment universe can be segmented.
- c. describe the types of income and costs associated with owning and managing an equity portfolio and their potential effects on portfolio performance.
- d. describe the potential benefits of shareholder engagement and the role an equity manager might play in shareholder engagement.
- e. describe rationales for equity investment across the active management spectrum.
- f. discuss considerations in choosing a benchmark for an equity portfolio.

7. Overview of Fixed-Income Portfolio Management

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- a. discuss roles of fixed-income securities in portfolios and how fixed-income mandates may be classified.
- b. describe fixed-income portfolio measures of risk and return as well as correlation characteristics.
- c. describe bond market liquidity, including the differences among market sub-sectors, and discuss the effect of liquidity on fixed-income portfolio management.
- d. describe and interpret a model for fixed-income returns.
- e. discuss the use of leverage, alternative methods for leveraging, and risks that leverage creates in fixed-income portfolios.
- f. discuss differences in managing fixed-income portfolios for taxable and tax-exempt investors.
- g. describe liability-driven investing.
- h. describe the strategy of cash flow matching.
- i. describe construction, benefits, limitations, and risk–return characteristics of a laddered bond portfolio.

8. 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.
- e. discuss suitability considerations in allocating to alternative investments.
- f. discuss approaches to asset allocation to alternative investments.
- g. discuss the importance of liquidity planning in allocating to alternative investments.
- h. discuss considerations in monitoring alternative investment programs.

9. An Overview of Private Wealth Management

The candidate should be able to:

- a. discuss the different types of individual wealth and how wealth is created and distributed globally.
- b. evaluate how changes in human capital, financial capital, and economic net worth across the financial stages of an individual's life influence their financial decision making.

- c. justify how returns, risks, objectives, and constraints for individuals relate to their human and financial capital.
- d. evaluate how various types of taxes imposed on individual investors and the impact of inflation influence investment decisions.
- e. discuss the differences between private and institutional clients and formulate an appropriate Investment Policy Statement for private clients.

10. Portfolio Management for Institutional Investors

The candidate should be able to:

- a. discuss common characteristics of institutional investors as a group.
- 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. evaluate the investment policy statement of an institutional investor.
- g. evaluate the investment portfolio of a private DB plan, sovereign wealth fund, university endowment, and private foundation.
- h. describe considerations affecting the balance sheet management of banks and insurers.

11. Trading Costs and Electronic Markets

The candidate should be able to:

- a. explain the components of execution costs, including explicit and implicit costs.
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- c. describe the implementation shortfall approach to transaction cost measurement.
- d. describe factors driving the development of electronic trading systems.
- e. describe market fragmentation.
- f. identify and contrast the types of electronic traders.
- g. describe characteristics and uses of electronic trading systems.
- h. describe comparative advantages of low-latency traders.
- i. describe the risks associated with electronic trading and how regulators mitigate them.
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12. Case Study in Portfolio Management: Institutional (SWF)

The candidate should be able to:

- a. discuss financial risks associated with the portfolio strategy of an institutional investor.
- b. discuss environmental and social risks associated with the portfolio strategy of an institutional investor.
- c. analyze and evaluate the financial and non-financial risk exposures in the portfolio strategy of an institutional investor.
- d. discuss various methods to manage the risks that arise on long-term direct investments of an institutional investor.
- e. evaluate strengths and weaknesses of an enterprise risk management system and recommend improvements.

13. Portfolio Performance Evaluation

The candidate should be able to:

- a. explain the following components of portfolio evaluation and their interrelationships: performance measurement, performance attribution, and performance appraisal.
- b. describe attributes of an effective attribution process.
- c. contrast return attribution and risk attribution; contrast macro and micro return attribution.

- d. describe returns-based, holdings-based, and transactions-based performance attribution, including advantages and disadvantages of each.
- e. interpret the sources of portfolio returns using a specified attribution approach.
- f. interpret the output from fixed-income attribution analyses.
- g. discuss considerations in selecting a risk attribution approach.
- h. identify and interpret investment results attributable to the asset owner versus those attributable to the investment manager.
- i. discuss uses of liability-based benchmarks.
- j. describe types of asset-based benchmarks.
- k. discuss tests of benchmark quality.
- l. describe the impact of benchmark misspecification on attribution and appraisal analysis.
- m. describe problems that arise in benchmarking alternative investments.
- n. calculate and interpret the Sortino ratio, the appraisal ratio, upside/downside capture ratios, maximum drawdown, and drawdown duration.
- o. describe limitations of appraisal measures and related metrics.
- p. evaluate the skill of an investment manager.

14. Investment Manager Selection

The candidate should be able to:

- a. describe the components of a manager selection process, including due diligence.
- b. contrast Type I and Type II errors in manager hiring and continuation decisions.
- c. describe uses of returns-based and holdings-based style analysis in investment manager selection.
- d. describe uses of the upside capture ratio, downside capture ratio, maximum drawdown, drawdown duration, and up/down capture in evaluating managers.
- e. evaluate a manager's investment philosophy and investment decision-making process.
- f. discuss how behavioral factors affect investment team decision making, and recommend techniques for mitigating their effects.
- g. evaluate the costs and benefits of pooled investment vehicles and separate accounts.
- h. compare types of investment manager contracts, including their major provisions and advantages and disadvantages.
- i. describe the three basic forms of performance-based fees.
- j. analyze and interpret a sample performance-based fee schedule.

15. Overview of the Global Investment Performance Standards

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- a. discuss the objectives and scope of the GIPS standards and their benefits to prospective clients and investors, as well as investment managers.
- b. explain the fundamentals of compliance with the GIPS standards, including the definition of the firm and the firm's definition of discretion.
- c. discuss requirements of the GIPS standards with respect to return calculation methodologies, including the treatment of external cash flows, cash and cash equivalents, and expenses and fees.
- d. explain the recommended valuation hierarchy of the GIPS standards.
- e. explain requirements of the GIPS standards with respect to composite return calculations, including methods for asset-weighting portfolio returns.
- f. explain the meaning of "discretionary" in the context of composite construction and, given a description of the relevant facts, determine whether a portfolio is likely to be considered discretionary.
- g. explain the role of investment mandates, objectives, or strategies in the construction of composites.
- h. explain requirements of the GIPS standards with respect to composite construction, including switching portfolios among composites, the timing of the inclusion of new portfolios in composites, and the timing of the exclusion of terminated portfolios from composites.
- i. explain requirements of the GIPS standards with respect to presentation and reporting.

- j. explain the conditions under which the performance of a past firm or affiliation may be linked to or used to represent the historical performance of a new or acquiring firm.
- k. discuss the purpose, scope, and process of verification.

READING 6

OVERVIEW OF EQUITY PORTFOLIO MANAGEMENT

EXAM FOCUS

This reading provides candidates with an overview of equity portfolio management. Candidates are expected to know the roles of equities in their clients' portfolios. Candidates also need to be familiar with their clients' constraints, which may include environmental, social, and governance (ESG) considerations. In addition, we present the three main approaches on how an equity manager's investment universe may be segmented. This reading continues with a discussion regarding the types of income and costs associated with managing an equity portfolio and how these costs may affect portfolio performance. Next, we will turn our attention to the potential benefits of shareholder engagement. Shareholder engagement refers to shareholders and managers seeking to influence the companies they invest in through calls and/or shareholder voting. Lastly, this reading focuses on the considerations in choosing the proper benchmark to evaluate portfolio performance.

MODULE 6.1: EQUITY INVESTMENT ROLES

LOS 6.a: Describe the roles of equities in the overall portfolio.

Within the overall investment portfolio, equity securities play several beneficial roles. These roles include capital appreciation, dividend income, diversification, and the potential to hedge inflation:

- ▮ **Capital appreciation.** The main driver of long-term equity returns is capital (or price) appreciation. Capital appreciation results from investing in companies that are experiencing growth in cash flows, revenues, and/or earnings. These companies range from small technology companies that are focused on growth opportunities to large, well-established companies that are

focused on value-added acquisitions and minimizing costs. In the last 50 years, equity returns on average have been higher than bonds and bills. In general, equities tend to outperform other major asset classes during periods of strong economic growth, and underperform during periods of weak economic growth.

- | **Dividend income.** This is an important component of equity return. When companies generate excess cash flows, they can decide to either reinvest those cash flows in value-added projects or distribute them to investors in the form of *dividends*. Well-established companies often pay dividends to investors, and those dividends may increase over time. However, dividend payments are not guaranteed to increase or even continue into the future. Typical recent annual dividend yields have been 1%–3%. Dividend yield tends to be more stable than return due to price change.
- | **Diversification.** Equity securities offer diversification benefits due to less than perfect (i.e., less than +1.0) correlation with other asset classes. When assets are less than perfectly correlated, portfolio standard deviation will be lower than the weighted sum of the individual asset standard deviations.
 - However, the risk reduction is not constant. During a financial crisis, correlations tend to increase, limiting the diversification benefit. Also, asset class standard deviations could increase, further reducing the expected reduction in portfolio risk.
- | **Inflation hedge.** In some cases, individual equities or equity sectors may provide a hedge against inflation. A company that can charge its customers more when input costs increase (due to inflation) can provide an inflation hedge by increasing to cash flow and earnings as prices increase. Commodity-producing companies (e.g., oil producers) may also benefit directly from commodity price increases.
 - With this, the general record for equities as an inflation hedge is mixed. Studies generally show positive correlation between equity real returns and inflation, but the relationship varies over time and by country. Other studies show that equities and inflation become negatively correlated during periods of hyperinflation. Also, equity prices are typically a leading economic indicator, while inflation is a lagging indicator. This also suggests a less than perfect correlation between equity return and inflation.

Client Investment Considerations

The decision to include equities or the kinds of equities to include in a portfolio also depends on client investment considerations as outlined in the investment policy statement (IPS). Clients with a high risk tolerance may prefer growth-oriented companies, while clients with a low risk tolerance may prefer stable, well-established companies that pay dividends.

Client constraints may include ESG considerations and religious beliefs. Portfolio managers can address these constraints by using the following:

- ▮ **Negative screening** (i.e., exclusionary screening) excludes companies or sectors that do not meet client standards. For example, a client may wish to exclude investments in the oil and gas industry.
- ▮ **Positive screening** (i.e., best-in-class screening) seeks to uncover companies or sectors that rank most favorably with clients. For example, a client may wish to overweight companies that exhibit strong governance practices.

Most recently, ESG integration has become the dominant sustainable investment strategy. In addition to maximizing financial performance, many investors are now looking to achieve a more qualitative aspect to their portfolio by aligning their investment choices to their values while aiming for a sustainable world and making a positive contribution to society. In all aspects of the investment process, asset managers can use ESG integration to analyze security valuation, determine expected returns, conduct risk analysis, and construct a complete sustainable portfolio.

Other approaches to ESG investing include thematic investing and impact investing. **Thematic investing** screens equities based on a specific theme, such as climate change. **Impact investing** aims to meet an investor's objectives by becoming more actively engaged with company matters and/or directly investing in company projects with the explicit intention of generating a positive social and environmental impact alongside a financial return.

Equity Investment Segmentation

LOS 6.b: Describe how an equity manager's investment universe can be segmented.

The three main **segmentation** approaches include size and style, geography, and economic activity. Using these approaches provides a better understanding of

how equity investments integrate into the overall portfolio and enhance diversification benefits.

Size and Style

Size, typically measured by market capitalization, can be categorized by large-cap, mid-cap, or small-cap companies. *Style* can be categorized by growth or value companies, or a mix of these two styles (sometimes referred to as *blend* or *core*). With this, investment style can be determined by analyzing company metrics, such as price-to-earnings ratios, price-to-book ratios, dividend yield, and earnings and/or book value growth.

A style box can be used to rank (or *score*) companies or portfolios among these metrics. An example is shown in Figure 6.1.

Figure 6.1: Equity Investment Style Box

		Style		
		Value	Blend	Growth
Size	Large	Large-cap value	Large-cap blend	Large-cap growth
	Medium	Mid-cap value	Mid-cap blend	Mid-cap growth
	Small	Small-cap value	Small-cap blend	Small-cap growth

It may be beneficial for portfolio managers to analyze exactly where each company falls within the nine size/style boxes (e.g., create a scatterplot of each investment within an equity index). For example, when comparing two equities within the large-cap value box, a scatterplot may reveal that one of these companies has a higher market cap and is solidly valued while the other may be closer to medium-cap and a blend investment style. Managers can also break the nine boxes into additional equity style classifications, such as micro-cap growth.

Advantages to segmenting by size and style include the following:

- Portfolio managers can better address client investment considerations in terms of risk and return characteristics.
- There is potential for greater diversification benefits by investing across different sectors or industries.
- There is the ability to construct relevant benchmarks for funds that invest in a specific size/style category.

- | There is the ability to analyze how company characteristics change over time. For example, as a small-cap growth company matures, it may move into the mid-cap or large-cap categories and shift toward blended from pure growth.

The last advantage is also a disadvantage in that the categories are not stable over time.

Geography

This approach categorizes international markets by stage of economic development, such as **developed markets**, **emerging markets**, and **frontier markets**. Examples for each economic development stage include the following:

- | *Developed markets*. United States, United Kingdom, Germany, Australia, and Japan.
- | *Emerging markets*. Brazil, Russia, India, China, and South Africa.
- | *Frontier markets*. Iceland, Estonia, Nigeria, Jordan, and Vietnam.

The main advantage to geographic segmentation is that investors with significant domestic market exposure can better understand how to diversify across international markets. One disadvantage to this approach is that investing in international equity markets may subject investors to currency risk. Another disadvantage is an overestimation of the diversification benefit. For example, a domestic investor from a developed market purchases stock in large companies in a foreign market to diversify. But the companies may have already diversified their business internationally and may even derive much of their income from the investor's country.

Economic Activity

This approach groups companies into sectors or industries by applying either a market-oriented or a production-oriented approach. A *market-oriented approach* segments companies by markets served, how products are used by consumers, and how cash flows are generated. A *production-oriented approach* segments companies by products manufactured and inputs required during the production process. Note that applying either approach may lead to slightly different classifications. For example, a market-oriented approach may classify a coal company in the energy sector, while a production-oriented approach may classify that same company in the basic materials sector.

The four primary classification structures for segmenting companies by economic activity are:

- ▮ Global Industry Classification Standard (GICS).
- ▮ Industrial Classification Benchmark (ICB).
- ▮ Thomson Reuters Business Classification (TRBC).
- ▮ Russell Global Sectors Classification (RGS).

The GICS applies a market-oriented approach, while the remaining structures apply a production-oriented approach. Each of these structures starts with a broad sector/industry classification and then divides further by subsector/subindustry. As an example, consider the segmentation method shown in Figure 6.2 for the GICS Consumer Staples sector.

Figure 6.2: GICS Classification Example

Sector	Consumer Staples
Industry group	Food, beverage, and tobacco
Industry	Beverages
Subindustry	Soft drinks



PROFESSOR'S NOTE

The four classification structures differ on their application of sector versus industry. For example, GICS, TRBC, and RGS refer to their top level as sectors and then subdivide into industries. In contrast, ICB starts with industries and then subdivides into sectors.

An advantage to economic activity segmentation is that it allows portfolio managers to analyze, compare, and construct performance benchmarks based on specific sectors/industries. In addition, diversification benefits are enhanced when investments span different sectors/industries. The main disadvantage to this approach is that some companies, especially larger firms, may have business operations that are not easily assigned to one specific sector or industry.

Equity Indexes and Benchmarks

Equity market indexes and equity portfolio benchmarks can be constructed based on a combination of size/style and geographic segmentation. For example, the MSCI Europe Large Cap Value Index and the MSCI China Small Cap Index combine elements from both size/style and geographic classifications. Economic

activity can also be used to subdivide equity indexes by sector or industry. For example, the MSCI World Energy Index and the S&P Global Natural Resources Index track global companies categorized by sector/industry. Equity indexes can also track unique client considerations, such as ESG practices.



MODULE QUIZ 6.1

1. Equities typically offer diversification benefits when combined with other major asset classes in a portfolio. **Discuss** two reasons an economic crisis may affect the risk reduction achieved through diversification.
2. Assume an investor is segmenting the equity investment universe by economic activity. **Describe** two advantages of applying this segmentation approach.

MODULE 6.2: PORTFOLIO INCOME AND COSTS, SHAREHOLDER ENGAGEMENT, PASSIVE/ACTIVE MANAGEMENT

LOS 6.c: Describe the types of income and costs associated with owning and managing an equity portfolio and their potential effects on portfolio performance.

There are several ways to earn (current) income from an equity portfolio.

Dividend income is the most obvious and often the largest. One additional consideration is how the dividends are taxed; they may be subject to income and/or withholding tax. Note that investors with a growth-oriented focus are less likely to seek portfolio income from dividends.

Some companies pay an **optional stock dividend**, which allows investors to choose between cash payments or stock dividends (i.e., new shares). This “option” between cash and stock dividends has value for the investor and can even be sold to another investor to immediately monetize the “option.” On occasion, some companies pay a **special dividend**, a one-time cash payment to investors (as opposed to the more typical periodic regular dividend).

Securities lending is another way to generate current income. Securities lending is often part of short selling. A short sale is the sale of a security that is not owned. To make the short sale, the seller must typically borrow the security in order to deliver it to the buyer when the short sale is made. The lender of the security is typically paid a fee and may also receive collateral or cash on which

they can also earn a return. The lender also receives back the security lent at a future date. Securities lending is not unusual in index funds, large institutional portfolios (e.g., pension funds), and endowments.

Security or **stock lending** does introduce additional issues. Short selling (like any sale) tends to drive down the security's price, which is not particularly beneficial to the lender, who still owns the security. This is more likely to concern an active manager who expects their holdings to outperform, as opposed to a passive index fund manager. The lender must also be concerned with the quality of the borrower and the borrower's ability to return the securities. The borrower must also compensate the lender for any dividend payments that occur during the period of the loan. The lender generally loses the right to vote the shares during the period of the loan.

Lenders typically collect a small fee, in the range of 0.2%–0.5% annually for developed markets. This fee can increase substantially for emerging market stock loans or stocks that are in high demand for borrowing, known as *specials*. As mentioned, lenders can also earn extra income by reinvesting the borrower's posted cash collateral. However, this reinvestment would be subject to various risks, such as market, credit, and operational risk. The reinvestment is likely to incur costs such as administration costs to keep track of everything.

Additional income strategies include:

- | Writing options (i.e., selling options) to earn option premiums. A **covered call** strategy involves writing a call option on a stock owned. The writer then loses the upside of the security if the price increases above the strike price. Another option strategy is a **cash-covered put** (a.k.a. a cash-secured put). This involves selling a put option on stock and setting aside sufficient cash equivalents to pay for the stock if the put option buyer exercises their right. The risk to the seller is the put buyer will only exercise the right if the stock declines in value.
- | **Dividend capture**, where an investor buys a stock right before its ex-dividend date, holds that stock through the ex-dividend date (entitling the investor to receive the dividend payment), and then sells the stock. The strategy is premised on and will be profitable if the stock price declines by less than the amount of the dividend. Theory says the stock should decline by the dividend amount, but stock movements may differ from expectations given market forces (e.g., supply and demand) and/or income tax considerations.

Equity portfolios also incur fees and costs. These include:

- | Management and performance (incentive) fees.
- | Administration fees.
- | Marketing and distribution fees.
- | Trading costs.
- | Investment strategy costs.

Management fees (i.e., **ad valorem fees**) compensate the manager and pay research and analysis, computer hardware and software, compliance, and processing trades. These fees are typically based on a percentage of assets under management and are due at regular time intervals (e.g., annually). The management fees vary and are usually higher for actively managed portfolios due to higher levels of investment analysis and portfolio turnover. The management fees are usually presented as a standard schedule of fees, although they can be negotiated.

Some managers also earn **performance fees** (i.e., **incentive fees**) when the portfolio outperforms a stated return objective. These fees are more common for hedge funds and alternative managers. For example, suppose a portfolio exceeds a threshold return; the manager may earn a performance fee in the range of 10%–20% based on any capital appreciation above the threshold. Incentive fees are often one sided; the manager shares in outperformance but is not penalized for underperformance.

To protect an investor from paying for performance twice, there may be a **high-water mark**. For example, assume a hedge fund earns a performance fee for outperforming its return objective and then the portfolio declines in value. The manager will only earn an incentive fee on future appreciation above the previous level that was already compensated for.



PROFESSOR'S NOTE

We are about to briefly discuss various types of fees and costs associated with equity (and other) assets. Managers may charge one management fee that covers all of these. In other cases, the manager may break out some or all of these and present them as separate fees. Other managers may not provide some of these services, and a separate third party provides and charges for them. The bottom line is that services are not free and must be paid for. The way the bill is presented varies, and investors need to consider all the costs in total.