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**Manager Selection, Monitoring**

**and Due Diligence**

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## ABOUT GREENE CONSULTING ASSOCIATES, LLC

Greene Consulting Associates was founded in 1979 and provides consulting and training services solely to the financial services marketplace. Located in Atlanta, Georgia, Greene Consulting has worked with the top providers of investment management and wealth management in both the United States and abroad. Focused on helping firms generate incremental revenue growth through more effective sales and relationship management strategies, Greene Consulting offers customized training programs in Financial Services Sales, a Sales Management program, Presentation Training that integrates proprietary products, and a comprehensive suite of online learning courses related to investments and wealth management.

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#### Table of Contents

1. Introduction
2. The Investment Planning and Management Process
3. Section 1: Manager Analysis and Selection
4. The Five “P’s” of Manager Analysis
5. Qualitative Analysis of a Manager
6. Evaluating a Manager’s “*People*”
7. Evaluating a Manager’s Investment “*Philosophy*”
8. Evaluating a Manager’s Investment “*Process*”
9. Evaluating Quantitative Factors
10. Evaluating a Manager’s “*Price*”
11. Evaluating Manager “*Performance*”
12. A Deeper Look at Performance Evaluation
13. Basic Performance Analysis
14. Performance Calculation Methodologies
15. CFA Institute GIPS Standards
16. Beyond Simplistic Performance Comparisons
17. Quantifying Market Risk
18. Semi-Standard Deviation
19. Covariance as a Measure of a Portfolio’s Relative Risk
20. The CAPM and the Security Market Line
21. Understanding Alpha and “Manager Impact”
22. Measuring Risk-Adjusted Returns of Managers
23. The Sharpe Ratio
24. Using the Treynor Ratio
25. The Sortino Ratio
26. A Step Beyond Performance Evaluation – Style Analysis
27. Two Types of Style Analysis
28. Details of Returns-Based Style Analysis
29. Summary of Performance Analysis
30. Review Exercise
31. Manager Monitoring, Rebalancing and Termination
32. Manager Monitoring
33. Overview of the Monitoring Process and Requirements
34. Factors Involved in the Monitoring Process
35. Key Components of Manager Monitoring
36. Monitoring Standards – Performance Measurement
37. Manager Monitoring – Performance Evaluation
38. Style Drift
39. Tracking Error
40. Other Factors to Review
41. Client Communication
42. A Case Study – “Trying Times”
43. Establishing Specific “Watch List” Procedures
44. Monitoring and Evaluating
45. Rebalancing the Portfolio
46. Tax Implications in Rebalancing
47. Manager Watch List Procedures and Termination
48. Conclusion

## Introduction

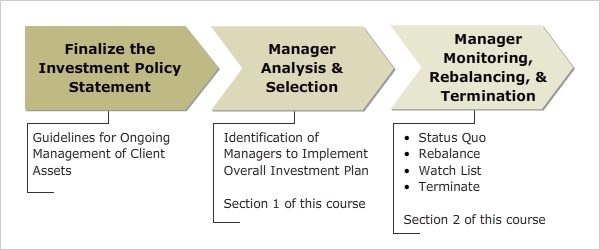
This course provides an overview of requirements for fulfilling the role of an investment fiduciary when selecting investment managers or funds for clients. However, given the wide variety of approaches to open architecture money management and managed accounts, internal processes, procedures and oversight requirements can vary from firm to firm. Therefore, specific guidance on procedures and compliance standards for your firm should be the guiding factors for your consideration.

The course was developed by Greene Consulting, with portions of the course being drawn from material developed by the Center for Fiduciary Studies, which operates in association with the University of Pittsburgh Katz Graduate School of Business. The Center is the first full-time research and training facility devoted to the subject of portfolio management and investment fiduciary responsibility. For further training and to acquire an industry-recognized designation regarding your role as an investment fiduciary, you may wish to enroll in the Accredited Investment Fiduciary (AIF) program offered through the Center for Fiduciary Studies. More information is available at www.cfstudies.com.

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| Objectives  Upon completion of this course you will:   * Understand the primary approaches to screening and evaluating managed investment solutions or separate account money managers. * Understand the primary tools and processes typically used to screen and monitor investment managers. * Establish a framework that can be used to monitor managers or other managed investment vehicles recommended for use in client portfolios. * Understand some of the most effective ways to re-balance and re-allocate assets from one manager to another in reference to the Investment Policy Statement. |

## The Investment Planning and Management Process

To keep the proper context within the overall asset management process, manager monitoring and selection are just a part of the range of requirements when implementing an investment plan for a client. Review the following to ensure you have context for where this portion of training fits relative to the full scope of the process. **Click on each icon for more detail.**

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| **Finalize the Investment Policy Statement**  The Investment Policy Statement (IPS) is the foundation of the client’s investment plan and establishes the parameters for the management of the assets. This statement results in a document that defines the guidelines for the ongoing management of the client’s assets. |

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| **Manager Analysis and Selection**  With the client goals established, the fiduciary is then ready to begin the screening and analysis of investment alternatives that will be used to fulfill the client’s investment plan. The first section of this course is dedicated to detailing the specific methodologies that can be used to analyze investment managers in order to make an informed and effective decision about the managers before they are hired. The result of this stage of the process is the identification of managers that are qualified to implement components of the overall investment plan. |

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| **Manager Monitoring, Rebalancing, and Termination**  Once managers are hired, the process of ongoing analysis and screening becomes the primary focus of the fiduciary. The second section of the course establishes a framework for fiduciaries to use in monitoring the managers. This monitoring process will result in one of four decisions – maintain status quo, rebalance, put a manager on the “Watch List”, or terminate and find another manager to fulfill the mandate. |

## Section 1: Manager Analysis and Selection

The initial section of this course is dedicated to describing the fundamental tools and methods of analysis that can be used to screen and select appropriate investment alternatives and managers for your clients. The primary role of the investment fiduciary is to manage an investment process. It is not to make the specific investment decisions or an attempt to make individual stock and bond picks. When acting in a fiduciary capacity, you are required to ***act prudently*** in implementing the investment strategy and will be held to a “prudent expert” standard. The law does not necessarily mandate the use of professional money managers, but to do otherwise is not recommended. Therefore, for the purposes of this course, we will focus on some of the factors you should consider and utilize when conducting the due diligence process and selecting money managers.

Investment selection decisions are always grounded in the specific goals, objectives, time horizon, risk profile and tax status of the client. Each of these details, as well as other important considerations, should be documented in the Investment Policy Statement. While the purpose of this course is not to detail the specifics of an effective, documented Investment Policy Statement, it is critical to emphasize the importance of developing a mutually understood and communicated IPS with your clients. With this in place, you can begin to employ specific screening and analysis of investment alternatives in an effort to define the best vehicles for your client’s portfolio allocations.

## The Five “P’s” of Manager Analysis

There are five primary topics of evaluation when screening and evaluating an investment manager. Often called the five “P’s”, these categories of analysis can be used to gain important insights into the managers and their ability to deliver value-added investment results for your clients over time. Specifically, these five “P’s” are:

* People
* Philosophy
* Process
* Price
* Performance

Of these five primary factors of manager analysis, three are more subjective, qualitative factors in the review. The other two, namely price and performance, are quantitative and therefore much easier to rationalize and comprehend.

## Qualitative Analysis of a Manager

Let’s first look at the more qualitative factors in the review process and identify what you should analyze in each category and what you should look for in a manager. By definition, qualitative factors are subjective and can be difficult to analyze, but the three criteria identified here can provide significant insights into a manager’s long-term ability to generate effective investment results. Let’s look at how you can analyze a firm’s *people*, *philosophy* and *process*.

## Evaluating a Manager’s “People”

The heart of an organization is the people who implement the discipline. When evaluating the people, the first level of review should be focused on the credentials, skills, experience and tenure of the portfolio managers and staff involved in making investment decisions within the portfolio.

The second level of review is to gain an understanding of what will keep them at the firm over time. This level of review and analysis would address the compensation structure and the overall ownership structure. You are looking to make sure that there is overall organizational stability and a compensation and ownership structure that provides the right incentives for retention of key players in the firm.

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| **How to Evaluate**  Evaluating “people” can seem to be a difficult proposition. What you really are trying to understand and evaluate is a manager’s or management team’s history and ability to effectively manage portfolios over time. Relative to the individual managers on the portfolio team, you are looking for a person or group that has experience and success in various market environments and cycles. This is a good indicator that the manager brings broad-based experience to the management of the portfolio. Other good indicators for your review would be the manager’s previous positions, as well as any industry credentials attained, such as the CFA.  Relative to the continuity of the manager(s), you want to gain insights into the retention strategy the firm has for the portfolio management team. You are looking for a plan and organizational strategy that provides strong incentives for the portfolio manager or team to stay with the firm over time. Incentive plans tied to asset growth and effective investment performance, as well as the potential for some form of company ownership, are positive indicators of organizational continuity. |

## Evaluating a Manager’s Investment “Philosophy”

The investment philosophy is the underlying investment beliefs that guide the manager’s investment discipline. As you analyze an investment discipline, you want to find a firm that has a clearly articulated philosophy that is the basis for how they deliver added value through their investment approach.

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| **How to Evaluate**  Philosophy is another area of very subjective evaluation and is difficult to analyze within a structured framework. Your analysis should focus on the ability of the manager to articulate their specific investment biases and the rationale they have for adding value in efficient investment markets. They should be able to discuss and show historical significance relating to how they can deliver incremental investment returns.  Examples of a firm’s investment philosophy could be as simple as their focus on a specific investment style, such as “large cap value,” but should be even more detailed. To use the value manager as an example, further detail around their investment philosophy could include details that formed the rationale for their focus on value stocks, such as the historical out-performance of low P/E stocks.  **What you are looking for:**  When reviewing a firm’s philosophy statement, you want to find managers that not only can effectively articulate the basis for their investment approach, but also firms that have a creative perspective on how they can exploit market inefficiencies in an effort to deliver incremental returns above the benchmark. |

## Evaluating a Manager’s Investment “Process”

Of utmost importance is the investment process and discipline. The investment process should be well documented and readily articulated. If a manager cannot discuss the specific steps they use to identify attractive securities, confirm the ideas, construct the portfolio and manage the portfolio on an ongoing basis, you should be suspicious of the manager’s ability to repeat past performance in the future. Remember that you are buying the investment manager and the investment discipline that has been used to produce the results over time.

Note that some managers have what is referred to as an “eclectic” investment discipline, meaning they are more dynamic in the way they uncover investment ideas. While not necessarily a bad investment approach, managers that lack a repeatable discipline should be put to greater levels of scrutiny to ensure that you understand the manager’s skill in producing effective returns in the future.

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| **How to Evaluate**  In discussions with a manager, or in review of their literature, look for the ability of the manager to state the stages of their investment process in constructing portfolios, and how they manage those portfolios over time. Questions pertaining to their screening methodologies, security valuation, research process, diversification standards, and their sell discipline are fundamental components of this analysis. |

## Evaluating Quantitative Factors

While the qualitative reviews of a manager are important, the foundation of the screening and due diligence is typically grounded in the quantitative analysis of a manager’s performance and their fees (price). The remainder of this section of the course will be focused primarily on the performance evaluation and analysis. But first, let’s look briefly at the analysis of manager fees.

## Evaluating a Manager’s “Price”

The fees and expenses of the investment strategy have a significant impact on the actual results that your client will experience. As such, evaluation of the fees and total expenses associated with the management of the portfolio are vital to fulfilling your role as a fiduciary.

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| **How to Evaluate**  Evaluation of the total fees requires that you review the management fees, as well as all other fees such as trading expenses, custody fees and 12b-1 fees (should the vehicle be a mutual fund). While it is not a requirement that you always obtain the lowest fees, the fees must be deemed appropriate. Typically, you can consider fees to be appropriate when they are no greater than the top quartile relative to other managers. | | |

## Evaluating Manager “Performance”

As already highlighted, performance is an important litmus test for the effectiveness of a firm’s investment skills, as applied within their process. Performance evaluation identifies the manager’s ability to deliver incremental returns across a variety of market cycles, including bull markets, bear markets and other important investment cycles such as style shifts and capitalization shifts. Most managers will be able to deliver alpha over short periods of time, or when the market tide is rewarding the types of securities their philosophical bias leads them to. However, far fewer will be able to add incremental value with consistency regardless of the dominant trends in favor.

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| **How to Evaluate**  The review and analysis of investment performance is critical to the selection process, but it can be complex. On the following pages, we will address in greater detail how to evaluate performance. | | |

## A Deeper Look at Performance Evaluation

Performance analysis is central to the quantitative evaluation of a manager or investment. But effective due diligence requires more than simplistic comparisons of returns in a basic search for an investment that performs well over 1, 3 and 5 years. As an investment specialist, you will need to go beyond basic performance comparisons that any client can do on their own and deliver a well-conceived and thorough analysis of a manager’s ability, skill and consistency over time, as well as the returns they can provide relative to the risk associated with their portfolio.

## Basic Performance Analysis

While reviewing performance data, it is important for you as a professional, and possibly an investment fiduciary, to have a deeper understanding of how performance can be calculated. This is beneficial not only when you screen managers, but also if you track your investment recommendations in an effort to quantify the impact of your investment selections on the client’s overall portfolio returns. In looking at performance analysis, let’s first explore the three basic views on investment return that should be used in an analysis.

Click each return type to learn more.

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| **Absolute Returns** |
| In reviewing the performance record, it is typical to look at 1, 3, 5 and possibly 7 and 10 year returns, if available. Each timeframe provides a relevant snapshot of the capabilities of the manager to deliver results; however, they are only the absolute surface of any credible analysis. |
| **Benchmark Relative Returns** |
| Benchmark relative returns provide a one layer deeper perspective than the absolute return views, as they can give insights into performance on a relative basis. Picking the appropriate index or indices to use in making the comparison can be simple in the case of large cap managers where the index is most often the S&P 500. Or it can be a more complex choice when dealing with a more eclectic manager who focuses on smaller segments of the entire equity universe – such as a small cap manager with a penchant for picking high growth stocks where the Russell 2000 might be appropriate, or perhaps another more specialized index could be used.  Regardless of the index, the obvious intent is to gain insights into the manager’s ability to generate returns relative to a “passive” or unmanaged portfolio of similar securities. The under or over performance is a possible indicator of a manager’s skill level in generating incremental value based on his or her efforts. |
| **Peer Relative Returns** |
| This perspective on performance analysis is used far less by the general investing public, but can provide an interesting perspective on the results the manager has been able to deliver. Because most managers have a specific style, market focus, or other twist they apply in their asset management approach, it is important to make an “apples-to-apples” comparison of the various managers in relation to their peer groups |

## Performance Calculation Methodologies

Performance calculations can be seemingly simple to make, but there are some insights that any fiduciary needs to be aware of as the approach to the return calculations can have a significant impact on the posted results. There are three basic ways that performance figures can be calculated.

**Click each return type to learn more.**

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| **Arithmetic Returns** |
| Average returns can be readily developed by simply taking a time series of returns, adding them together and dividing by the number of observations in the series. This is no more than simple, basic averaging. While this provides some perspective, using arithmetic returns is not generally appropriate as it does not account for the compounding effects of the returns over time. **Click here to see an example.**   |  | | --- | | **Arithmetic Returns Example**  The arithmetic return is the simple average of returns over a specified period.  **Example:**  A $100 portfolio returned +25% in the first quarter, but lost 20% in the second quarter. The arithmetic calculation would be to average the two returns:  (+25%)(.5) + (-20%)(.5) = +2.5%. | |
| **Geometric Returns** |
| When examining performance figures, whether for calculating a historical return or developing inputs for a risk-premium model, the question becomes whether you should use the geometric or the arithmetic average. The answer is geometric.  The geometric return links performance results over specified time periods. This is by far a better approach to the calculation as it takes into account the impact that compounding can have over a given time period. **Click here to see an example.**   |  | | --- | | **Geometric Returns Example**  A $100 portfolio returned +25% in the first year (ending value is $125) but lost 20% in the second year (ending value is $100). The average return calculation would post a positive 2.5% return for the two-year period. However, the ending value of the portfolio would actually be $100, indicating that because of the compounding effects, the real realized return was 0%.  In comparison to the arithmetic return of 2.5%, the geometric return would be 0%, better reflecting the real realized return. | |
| **Time-Weighted Returns** |
| Time-weighted returns provide a better insight to the return history than does the arithmetic return. Because in many cases an investor will increase or decrease the investment allocation during the course of a given month, there needs to be a performance calculation that accounts for those cash flows. A time-weighted rate of return takes into consideration the cash flows that occur and the market value of the asset on the cash flow date. This calculation approach uses the beginning and ending asset values for the period and weighs each cash flow by the amount of time it is invested. **Click here to see the formula for calculating the time weighted returns of a portfolio.**   |  |  |  |  | | --- | --- | --- | --- | | **Time-Weighted Returns Example**   |  |  |  | | --- | --- | --- | | Time-Weighted Return = | MVE  MVB | - 1 |   where:  **MVE** The market value of the portfolio at the **end** of the current period before any cash flows in the period but including any income (reinvested distributions) in the current period  **MVB** The market value of the portfolio at the **beginning** of the current period including any cash flows at the end of the previous period and any accrued income to the end of the previous period. | |

In general, the standard for calculating investment performance over time would be to use geometrically-linked, time-weighted returns.

## CFA Institute GIPS Standards

The Chartered Financial Analyst Institute (CFA Institute), formerly known as The Association for Investment Management and Research (AIMR), is a non-profit industry association that provides rules and guidelines for the investment industry. This organization has developed very specific standards for performance reporting in an effort to provide a level playing field where all investors can accurately assess performance of managers on a relative and accurate basis. The following page details some of the key aspects of the Global Investment Performance Standards (GIPS), formerly known as the AIMR Performance Presentation Standards (AIMR-PPS), as they were adopted by the Association. Note that while these are not mandatory, the industry standard is definitively the use of GIPS-compliant calculation and presentation standards.

**Click each standard to learn more.**

**GIPS standards1**

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| **Total return, including realized and unrealized gains and losses plus income, must be used when calculating investment performance.**  When reporting performance, the manager must always use the total returns of the portfolio, including all cash held, as well as both the realized and unrealized gains as of the end of the period. It is not appropriate to use net of cash performance figures. Managers should also make sure to include unrealized gains or losses as of the end of the period in order to make an accurate portrayal of their investment success through the time period under review. |

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| **Calculation of a time-weighted rate of return using a minimum of quarterly valuations and geometric linking of these interim returns. Approximation methods are acceptable.**  While we have discussed time-weighted returns and geometric linking to ensure that the real-life effects of compounding are taken into consideration, this portion of the standards also adds that a minimum standard for performance calculation should be the use of quarterly return observations |

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| **Accrual accounting must be used for fixed-income and all other securities that accrue income. Accrued income must be included in the market value calculation of the denominator as well as the numerator.**  Given that time-weighted calculations are the product of the market value at the end of the period, divided by the market value at the beginning of the period, the accrued income from fixed income investments should be accrued to both the numerator and the denominator of the equation to ensure accurate calculation of the performance. |

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| **Composites must be asset weighted using beginning-of-period weightings.**  When publishing performance track records, managers should use composites, where all like managed accounts are aggregated for performance calculation. Using a composite limits the manager’s ability to “cherry pick” a few well-performing accounts to be used for performance reporting purposes. These composites should always be asset-weighted. |

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| **Returns from cash and cash equivalents held in portfolios must be included in return calculations. Further, the cash and cash equivalents must be included in the portfolio amount on which the return is calculated.**  Portfolio returns should include the returns associated with cash holdings. Some managers attempt to show returns net of cash positions in order to enhance the performance by excluding the drag cash has on the portfolio. This would not be compliant with the standards. |

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| **Gross of fees numbers along with a fee schedule should be reported.**  The GIPS suggests reporting gross of fees numbers along with a fee schedule. Keep in mind, however, that the SEC may require net of fees presentation. A discussion from the CFA Institute website helps to clarify.   |  | | --- | | **Discussion**  The GIPS recommends that performance results be presented gross (before deduction) of management fees, except where this will conflict with the SEC's position on advertising performance. This is because manager's fees are usually scaled resulting in performance information that will not be representative for a portfolio that is much larger or smaller than the size of the portfolio represented by the average fee. The GIPS feels it is more representative to show results before the deduction of management fees and to provide a fee schedule that represents the fee that would actually be paid by the prospective client. The choice of net versus gross is left to the manager, as long as the manager discloses which method is used and includes a fee schedule. When net of fee composite results are shown, the manager must also disclose the weighted average fee  The SEC staff allows performance information to be presented gross of management fees in one-on-one presentations accompanied with disclosures that (i) the results do not reflect the deduction of investment management fees, (ii) the client's return will be reduced by the management fees and any other expenses incurred in the management of its account, (iii) disclosure of the investment advisory fees are described in Part II of the adviser's Form ADV. Also accompanying these disclosures must be "a representative example" which shows the effect an investment advisory fee, compounded over a period of years, could have on the total value of a client's portfolio. The SEC staff defines one-on-one presentations as manager performance presentations to any client, prospective client, consultant or affiliated group entrusted to consider manager selection and retention. Communications by managers can, therefore, be made to multiple representatives of a given prospect, even if there are several portfolios within the group. Any written performance presentation material distributed to more than one client or prospect, in other than one-on-one presentations, must present performance results after deduction of management fees and cannot present gross of fee performance results.  *Source: AIMR Newsletter, May - Jun 1995* | |

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| **Trade-date accounting should be used.**  All transactions should be based on trade-date accounting, not the settlement date. Should a trade occur at the end of a period, with the settlement date being in the next period, the performance reporting should continue to reflect the transaction as of the trade date. |

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| **Performance adjustments for external cash flows should be treated in a consistent manner. Significant cash flows (i.e., 10% of the portfolio or greater) that distort performance (i.e., plus or minus 0.2% for the period) may require portfolio revaluation on the date of the cash flow (or after investment) and the geometric linking of sub periods. Actual valuations at the time of any external cash flows will be required for periods beginning January 1, 2010.**  This section of the standards addresses the impact of “significant cash flows” on the performance calculation.  The manager must have a standard for accounting for large cash flows in and out of the portfolio as these cash flows can alter the geometric calculation of performance over time. One way is to set a threshold for what is a significant cash flow, such as +/-30%. At a point where the cash flows exceed this limit, the portfolio is revalued as of the start date or end-of-period date, and adjusted for the cash flows.  As the rule states, compliance with GIPS Standards will require daily valuation, thereby negating the cash flow issue in the performance calculation. |

For a complete copy of the GIPS Standards, please follow this link: http://www.gipsstandards.org/standards/index.html

**1** *GIPS Standards*, 2010 edition.

## Beyond Simplistic Performance Comparisons

When reviewing the manager’s performance, it is important to look at more than simply absolute returns, or returns versus an index. In either case, the risk profile of the manager is not taken into consideration. It might be that over the short term a manager is delivering returns above the benchmark, but has done so by straying outside their investment mandate, thereby causing the overall client portfolio to be put at greater risk. Or, the manager might have delivered returns by taking on excessive levels of risk exposure which could be detrimental to the portfolio in the future.

To make a full analysis of performance statistics, you will need to utilize other tools that help quantify risk exposure relative to the performance generated. In either case, there are tools and calculations that can be used to provide attribution of the manager’s returns to their investment tendencies during the period.

Attribution analysis can quickly become quite mathematically complex. The intention of this course is not to delve into these topics in depth, but we will next look at some more sophisticated performance evaluation methods that will help provide you greater insights into a manager’s performance record. First, let’s look at how risk can be quantified.

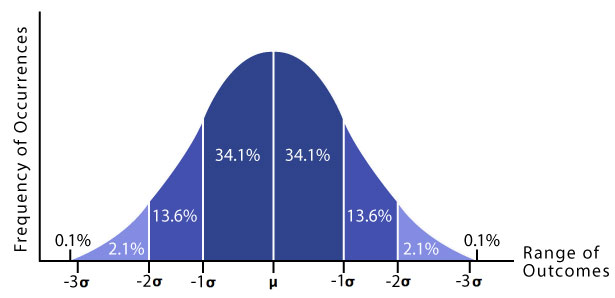
## Quantifying Market Risk

While returns are important, as an investment fiduciary you are obligated to review returns in light of the risk exposure of the portfolio as well as the returns that are generated. Let’s first look at how risk can be quantified.

In quantifying market risk, we begin to make a transition from the basics that nearly everyone understands to the more intricate aspects of asset allocation theory and its application in today’s environment. The common way to measure market risk is through an examination of the dispersion of returns over a given time period. This can be measured in ***standard deviations***, which quantifies the dispersion of returns around the mean (average). The greater the standard deviation, the more volatile the manager returns are and the greater the implied volatility/risk.

To understand standard deviation and its application in the measurement of manager return volatility, look at the following chart. It represents what is referred to as a “normal distribution of events.” When a series of events follow a normal distribution, we can begin to predict the future events within a given probability.

**Click the icon to view an analysis of the chart.**



|  |  |
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| **Video Script** | |
| **Script** | **Actions** |
| As can be seen from this chart, a normal distribution curve assumes an equal number of occurrences on each side of the mean, as well as an equal range of returns on either side of the mean. In other words, it assumes perfect symmetry. | [*No action.]* |
| One standard deviation covers approximately 68% of the observed returns around the mean (34% on each side). | *[Highlight the dark blue sections.]* |
| Two standard deviations on either side of the mean represent approximately 95% of all observed returns and 3 standard deviations cover over 99% of the observed returns. | *[Extend the highlight out to include the medium blue section.]* |
| For example, one could predict with 95% confidence that future returns should fall within 2 standard deviations around the mean. For purposes of measuring and modeling risk, most practitioners use one standard deviation, using approximately 68% of the observed returns to predict the future returns distribution. | *[Maintain the highlight from the preceding.]* |
| As a measure of risk, the greater the standard deviation, the more volatile the asset is and the greater the risk. For example, if an investment has a mean return of 5% with a standard deviation of 2%, then 68% of returns will be within 2% to 7% (5% plus or minus 2%). | *[Graph goes away and the following statement and then the example appears:]*  The greater the standard deviation, the greater the risk.  Example 1:  **μ = 5%**  **σ = 2%**  68% of returns expected to be  from 2% to 7% (5±2%) |
| However, if the standard deviation is larger, say 8%, then 68% of returns will be within -3% to 13% (5% plus or minus 8%). Clearly, the second investment with the greater standard deviation is more volatile and therefore has more market risk. | *[The following is added to the preceding example:]*  Example 2:  **μ = 5%**  **σ = 8%**  68% of returns expected to be  from -3% to 13% (5±8%) |

In terms of manager performance and risk assessment, you can observe the absolute performance over time and compare that to the manager’s standard deviation of returns. The standard deviation of returns provides insights into the level of fluctuation of the returns around the mean over time. The higher the standard deviation of the returns, the greater the volatility of returns generated by the manager.

## Review Question

Select the correct answer to each question.

Which of the following managers would you deem to be more “risky” in terms of performance volatility?

|  |  |  |
| --- | --- | --- |
|  | **Performance** | **Std Deviation** |
| **Manager A** | 14.2% | + 1 |
| **Manager B** | 17.4% | + 2 |

* Manager A

**Incorrect**: Remember, standard deviation is a measure of performance volatility here, and the higher the deviation, the more volatile the return history.

* **Manager B**

**Correct**: While the returns of Manager B are higher, the higher standard deviation is indicative of greater dispersion of returns.

In terms of manager performance and risk assessment, you can observe the absolute performance over time and compare that to the manager’s standard deviation of returns. The larger the standard deviation, the more volatile the return pattern has been.

## Semi-Standard Deviation

There is a significant problem using typical *standard deviation* as a measure of volatility. This measurement assumes that any volatility around the mean return – or a target return – is bad. The problem lies in the fact that standard deviation does not discriminate between upside and downside volatility.

To gain a more accurate insight into the volatility patterns of a manager, a more appropriate risk measure for long-only portfolios is the ***semi-standard deviation*** or ***downside deviation*** measure. Semi-standard deviation focuses on the portfolio volatility during under-performing periods of time. In other words, it does not measure the volatility during out-performing periods, but instead analyzes the volatility of portfolio returns when the performance as less than the benchmark or target return expected. A higher semi-standard deviation indicates more volatility in under-performing periods. Therefore, a lower semi-standard deviation is more desirable. Put another way, the greater the downside volatility of the returns, the higher the downside risk.

Test Your Knowledge

A manager has delivered excellent returns during a recent bull market. In analyzing the longer-term track record to gain insights into their risk profile in down markets, you find that the manager generated returns of -3% and -6% on their portfolio when the markets were -2% and -1% respectively.

Based on this information, which of the following would you expect to be true?

Click the correct answer.

A)The semi-standard deviation would be low

B)The semi-standard deviation would be high

## Test Your Knowledge – Answer Key

Select the correct answer to each question.

A manager has delivered excellent returns during a recent bull market. In analyzing the longer-term track record to gain insights into their risk profile in down markets, you find that the manager generated returns of -3% and -6% on their portfolio when the markets were -2% and -1% respectively.

Based on this information, which of the following would you expect to be true?

Click the correct answer.

A) The semi-standard deviation would be low

**Incorrect**. Keep in mind that low semi-standard deviations are related to volatility in down markets and are reflective of the level of volatility when returns are below the target or benchmark. Review this concept above to make sure you have a firm understanding before proceeding.

**B) The semi-standard deviation would be high**

**Correct**. Because the downside performance experience of the manager was more volatile below the target benchmark, the semi-standard deviation would be higher.

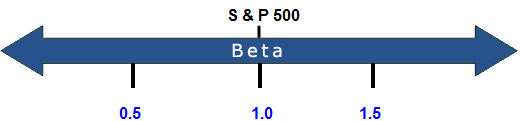
## Covariance as a Measure of a Portfolio’s Relative Risk

Measuring the variation of a portfolio’s rate of return is of limited use unless it is done in comparison to a benchmark. Standard Deviation measures absolute return volatility but not volatility that one would naturally expect relative to the market fluctuations that have occurred. Wide swings in a manager’s performance that are perfectly in sync with a volatile market might indicate that the manager is no riskier than the market as a whole, while wide price swings on an investment manager’s performance during a stable market might indicate that the manager is significantly riskier than the market as a whole. This movement of a manager’s return relative to the movement of the market can be statistically measured and is called ***covariance***. Stated differently, ***covariance measures the extent of mutual variation between any two variables***. In this case, the two variables are the manager’s portfolio and the general market index.

The Capital Asset Pricing Model uses a concept known as ***beta (ß)*** to measure the covariance between a stock and the market. In other words, ***beta (ß)*** is a measure of how a stock or portfolio moves relative to movements in the market. If the beta of each stock in a portfolio is known, then the beta of a portfolio can be easily determined by calculating a weighted average of the betas of all the stocks in the portfolio. In this manner, beta can be used to speak of the risk of a stock or a portfolio relative to the market.

A high beta means that the portfolio is riskier than the market as a whole; a low beta means it is less risky than the market. If a security moves perfectly in sync with market movements (in the same direction and to the same degree), then it has a beta coefficient of 1.0.

**For an understanding of other beta coefficients, click each coefficient below.**



|  |
| --- |
| **0.5**  Beta coefficients below 1.0 indicate that a stock or portfolio is less risky than the market as a whole. Thus, the risk premium is less than that of the market. When the market rises, the stock (portfolio) will not be expected to rise as much; when the market declines, the stock (portfolio) will be expected to decline to a lesser degree.  **Example**: If the risk premium (the rate above the risk-free rate) for the market is 8%, a stock with a beta of 0.5 would have a risk premium of 0.5 x 8% = 4%. |

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| **1.0**  A stock with a beta coefficient of 1.0 has the same coefficient as the market as a whole, thus it is expected to behave perfectly in sync with the market. Thus, its risk premium is equal to that of the market. |

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| **1.5**  Beta coefficients above 1.0 indicate that the stock or portfolio is more risky than the market as a whole. Thus, its risk premium is greater than that of the market. When the market rises, the stock (portfolio) will be expected to rise even more; when the market declines, the stock (portfolio) will be expected to decline even further.  **Example**: If the risk premium (the rate above the risk-free rate) for the market is 8%, a stock with a beta of 1.5 would have a risk premium of 1.5 x 8% = 12%. |

## The CAPM and the Security Market Line

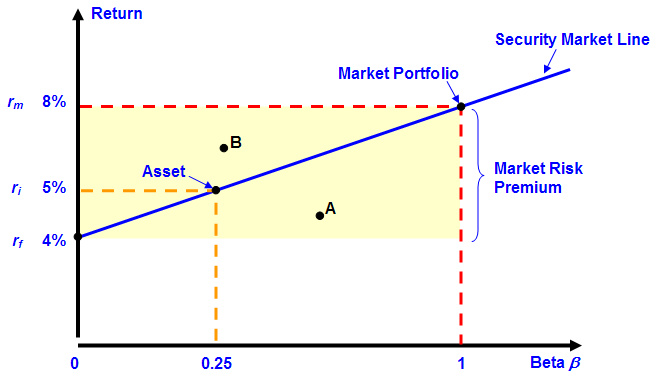
At the heart of most manager analysis methodologies is the Capital Asset Pricing Model and Modern Portfolio Theory. While this course is not intended to review these topics in depth, it is important to review the models in order to ensure understanding of some key terms and definitions.

The key message of the CAPM is that there is a direct relationship between risk and return. The implication for purposes of asset allocation is to emphasize the importance of first determining the risk tolerance of the investor, then identifying a portfolio that efficiently achieves a fair return for that given level of risk. Investors should not expect to “beat the market” unless they intend to have a portfolio that is riskier than the market as a whole.

The message and implications for the CAPM becomes more easily understood through a graph.

**Click each term on the graph for an explanation, paying particular attention to the Security Market Line.**

Security Market Line Graph

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| **Return**  The vertical axis measures the expected rate of return of a stock or portfolio. |

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| **Beta ß**  The horizontal axis measures the risk associated with the stock or portfolio as beta (ß). This risk is determined relative to the risk of the market as a whole. |

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| **rf**  The risk-free rate **(rf )** is the rate of return that would be expected on risk-free securities, such as T-bills. In this illustration, it is 4%. |

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| **rm**  The market return (rm ) is the return expected on the general market. In this illustration, it is 8%. |

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| **0**  When there is no risk associated with the security or portfolio, the beta (ß) is zero. The CAPM teaches us that to get greater return, you must assume risk. |

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| **1**  The beta of the general market is 1. To gain a higher expected return than the general market, an investor must assume more risk than the general market. |

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| **0.25**  When a stock or portfolio has some risk, but less risk than that of the general market, its beta (ß) is somewhere between 0 and 1. For this asset, the beta is 0.25. Using the CAPM formula, its expected return is therefore:  ***E(ri ) = rf + ßi x [E(rm ) - rf ]***  ***E(ri ) = 4% + 0.25 x (8% - 4%) = 5%*** |

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| **ri**  The rate of return for an investment asset is designated as ri . In this example, ri = 5%. |

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| **Market Portfolio**  The Market Portfolio, for which the S&P 500 can serve as a proxy, has a beta of 1. In this case, the rate of return for the market portfolio is 8%. |

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| **Market Risk Premium**  The risk premium required by investors for holding an S&P 500 Index fund rather than risk-free securities is the incremental return over and above the risk-free rate of return. This is depicted here by the spread between the risk-free return of 4% and the market return of 8%. |

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| **Asset**  This example looks at a single investment asset. It could just as easily look at a portfolio of stocks by calculating a weighted average of their betas. |

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| **Security Market Line**  Connecting the risk-free asset and the market portfolio with a straight line depicts the “Security Market Line.” This straight line reflects the fact that the expected risk premium on all possible stocks or portfolios varies in direct proportion to their beta. Under the premise of the CAPM theory, all efficient portfolios (combinations of various securities) lie on this security market line. Thus, for any given level of risk, an investor can use the Security Market Line to identify the return he should expect from a portfolio by checking the corresponding value on the y-axis.  For example, look at the asset labeled “A.” It offers a rate of return lower than would be expected for an asset of comparable risk on the security market line. Investors will bid its price down until its rate of return moves it up to the security market line. Likewise, asset “B” offers a higher return than an asset of comparable risk on the security market line. Investors will bid its price up until its return declines to the security market line. Based on the belief that the market is very efficient in processing information and making such adjustments, the CAPM contends that these adjustments take place very quickly. |

## Understanding Alpha and “Manager Impact”

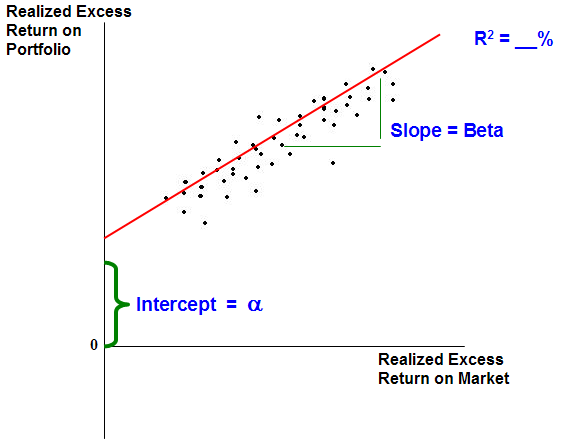
While the efficient market theory dictates that portfolio managers cannot achieve “excess” return, history has shown that, for given periods of time, some in fact do achieve excess return, while others underperform.

A key term used in asset allocation to account for the impact of the portfolio manager on performance is ***alpha (a)***. This term, whose basis is in CAPM theory, can be especially helpful as you seek to identify managers that have the ability to deliver true value-added returns over and above what would be expected based on the market returns and the risk exposure of the portfolio. In a basic sense, the alpha is a score that quantifies what many refer to as “manager impact”, or value- added, either positively or negatively, from the skills of the investment manager.

The chart below samples portfolio return observations over time and plots the portfolio’s excess return against the excess return of the market for the same period. After taking the samples, regression analysis is used to plot a line through the samples that represents the “average best fit regression” of the scattered plots. If the CAPM holds, the portfolio should have zero excess return when the market has zero excess return and the line should intercept the axis at zero. When that doesn’t happen, another factor has been introduced, which either caused excess return (causing the line to intercept above the horizontal axis) or it caused diminished return (causing the line to intercept below the horizontal axis).

***Alpha is the magnitude of the distance from the horizontal axis to the point where the line intercepts the vertical axis.*** Generally speaking, alpha is used as a measure of the portfolio manager’s contribution to the performance of the portfolio.

**Click each term below to learn more.**



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| **Alpha**  Alpha identifies the difference in expected return of a portfolio, based on the beta of the portfolio, versus the actual returns that were achieved. The higher your alpha, the better your portfolio has done in achieving “excess returns”. It is generally considered to be a measure of the “value added” by the portfolio manager. The higher the alpha, the higher the “value added” by the portfolio manager, while a negative alpha indicates that the portfolio manager’s efforts were counterproductive, resulting in diminished returns.  Note: The market portfolio alpha is always zero. |

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| **Beta**  Beta measures the portfolio’s sensitivity to movements in a benchmark index, such as the S&P 500. A beta greater than 1.0 means that the security or portfolio is more volatile than the benchmark index, and a beta less than 1.0 means the asset or portfolio is less volatile. |

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| **R2**  This is a strictly “statistical term” that indicates the percentage of a portfolio's movement that is explained by the movement in the benchmark index. R2 ranges from 0 to 100%, with a score of 100% indicating that all movements of the portfolio are completely explained by the benchmark index. In general, the higher the R2, the more reliable a portfolio's alpha and beta measurements will be. |

## Measuring Risk-Adjusted Returns of Managers

While the preceding topics addressed some of the foundations of investment analysis from a statistical point of view, we now want to turn the discussion to a more practical discussion of some ways that you can measure risk-adjusted returns of a manager. There are a number of alternative approaches to measuring the risk-adjusted returns delivered by a manager. The three primary alternatives used are the Sharpe Ratio, the Treynor Ratio, and the Sortino Ratio. These are discussed on the following pages.

## The Sharpe Ratio

The ***Sharpe Ratio*** is a measure of return to volatility and is useful in judging an investment manager’s performance versus an index. This ratio was developed by Nobel Laureate William Sharpe. The Sharpe ratio, also referred to as a measurement of risk-adjusted return, measures excess return per unit of risk taken. The calculation is made as follows:

**(Return – Risk-Free Rate of Return) / Standard Deviation**

Take a look at the following example:

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| **Sharpe Ratio**  Let’s say a manager generated a return in a portfolio of 30% over a period of time. The risk-free rate, as measured by 91-day T-bills during the same period, was 3% and the standard deviation of the portfolio was 14% during the same period.  **The risk-adjusted return (Sharpe Ratio) would be:**  (30% - 3%) / 14% = 1.93% |

The Sharpe ratio should be used to compare the relative performance of managers within the same peer group or asset class. If two managers have the same return, but different levels of volatility (standard deviation), the manager with the higher Sharpe Ratio would be preferable. Overall, ***the higher the Sharpe Ratio, the better*** because a high Sharpe ratio implies the portfolio is achieving good returns for each unit of risk.

## Using the Treynor Ratio

While understanding the overall returns of a manager or fund can provide some insights, returns alone are not the only perspective that must be examined. Risk is an important consideration. The ***Treynor Ratio***, also commonly referred to as the ***reward-to-volatility ratio***, is a calculation measuring investment performance adjusted for market risk. It is similar to the Sharpe Ratio, except that it uses Beta as the volatility measurement instead of standard deviation. The ratio divides the difference of the average return of a fund and the risk-free rate by beta (market risk) of the fund. Therefore, it tells us the return over the risk-free rate per unit of market risk. ***The higher the Treynor Ratio, the better*** the performance of the manager has been on a risk-adjusted basis.

Here is an example of how the Treynor Ratio is calculated and used:

|  |
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| **Treynor Ratio**  Suppose you have a manager who has produced an average return of 12% over a three-year period during a time when the risk-free rate was 5%. The difference between the actual performance and the risk-free rate is 7%. Also assume for this example that the beta of the portfolio is 1.25.  **The Treynor Ratio Calculation:**  (Actual Performance – risk-free rate) / portfolio beta  (12% -5%) / 1.25) = 5.6% |

## The Sortino Ratio

The last of the commonly used measurements regarding risk-adjusted returns analysis is the Sortino Ratio. Named after Frank Sortino, the Sortino Ratio measures investment performance adjusted for downside risk. It is similar to the Sharpe Ratio, except that it uses semi-standard deviation rather than standard deviation as the factor representing volatility in the equation. The ratio divides the difference of the average return of a fund and the risk-free rate by semi-standard deviation of the fund. Therefore, it tells us the return over the risk-free rate per unit of downside risk. The **higher the Sortino Ratio, the better the performance of the manager has been on a risk-adjusted basis**.

Here is an example of how the Sortino Ratio is calculated and used:

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| --- |
| **Sortino Ratio**  Suppose you have a manager who has produced an average return of 12% over a three-year period during a time when the risk-free rate was 5%. The difference between the actual performance and the risk-free rate is 7%. Also assume for this example that the semi-standard of the portfolio is 2.0.  **The Sortino Ratio Calculation:**  (Actual Performance – risk-free rate) / semi-standard deviation  (12% -5%) / 2.0) = 5% |

## A Step Beyond Performance Evaluation – Style Analysis

While two managers might have equal performance records, and even have similar Sharpe Ratios, it does not necessarily mean that they have identical investment approaches. In fact, one manager might invest in small-cap value stocks while another concentrates on finding attractive holdings by focusing on large cap growth stocks. In these cases, style analysis can be used to understand what types of investments they are buying and how they fit into existing portfolios. Financial advisors, money managers, and academics, among others, use style analysis to purchase, classify, or construct managed investments and to monitor them for style drift. Style analysis is also used to construct peer groups and to select appropriate style-specific benchmarks.

## Two Types of Style Analysis

While style analysis is generally accepted as an effective tool for understanding how a manager is investing a portfolio, there are some differences of opinion on how style analysis should be done. There are two primary approaches to style analysis: the returns-based and the holdings-based.

**Click each type to learn more.**

|  |
| --- |
| **Returns-based Style Analysis** |
| Returns-based style analysis compares the portfolio’s historical returns to the returns of various indexes over an identical time period. The approach is a mathematical regression seeking to explain the portfolio returns by establishing correlations between the actual returns of the portfolio and a series of benchmark indices representing the broad array of asset class exposures that could be used. Inferences about the manager’s style can be based on how closely the portfolio returns resemble those of the various different indexes.  In the seminal work on investment styles,1 Nobel Laureate William Sharpe established a multi-factor regression model using a variety of investment indices to track the performance generated across the global markets. This regression approach was further refined and presented in a later publication in the Journal of Portfolio Management where a 12 factor model was used. 2 By doing regression analysis, Sharpe was able to infer specific style exposures or style bets being made in a portfolio. While not 100% accurate, it was an approach that intended to provide greater insights into the exposures and tendencies of an active manager.  *1 Sharpe, William F., Determining a Fund’s Effective Asset Mix, Investment Management Review, December 1988, pp. 59-69.*  *2 Sharpe, William F., Asset Allocation: Management Style and Performance Measurement, An Asset class factor model can help make order out of chaos, Journal of Portfolio Management, Winter 1992, pp. 7-19* |
| **Holdings-based Style Analysis and Attribution** |
| Holdings-based style analysis and attribution is a more sophisticated, and much more mathematically complex, approach to performance analysis. In this methodology, a manager’s portfolio is classified based on the specific characteristics of the actual securities held in the portfolio. Many believe that this is the most effective and accurate approach to understanding the exact style of a manager. However, it can be very difficult to perform holdings-based analysis as it requires that you have access to the actual holdings of the manager at numerous points in time in order to make appropriate comparisons.  While it is argued that returns-based style analysis is not as accurate as is a holdings-based approach, it is a more common form of style analysis primarily because the data required to make the assessment is more readily available. |

## Details of Returns-Based Style Analysis

In William Sharpe’s 1992 work referenced on the previous page, he used 12 indices as the basis for examining the exposures of a manager’s portfolio. Listed below are the indices that he used and how they were constructed.

**Click each index to learn more.**

|  |  |
| --- | --- |
| Bills | Large-Capitalization Growth Stocks |
| Intermediate-term Government Bonds | Medium-Capitalization Stocks |
| Long-term Government Bonds | Small-Capitalization Stocks |
| Corporate Bonds | Non-U.S. Bonds |
| Mortgage-Related Securities | European Stocks |
| Large-Capitalization Value Stocks | Japanese Stocks |

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| --- |
| Bills  Cash equivalents with less than 3 months to maturity  **Index**: Salomon Brothers' 90-day Treasury bill index |

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| Intermediate-term Government Bonds  Government bonds with less than 10 years to maturity  **Index**: Barclays Intermediate-term Government Bond Index |

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| Long-term Government Bonds  Government bonds with more than 10 years to maturity  **Index**: Barclays Long-term Government Bond Index |

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| Corporate Bonds  Corporate bonds with ratings of at least Baa by Moody's or BBB by Standard & Poor's  **Index**: Barclays Corporate Bond Index |

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| --- |
| Mortgage-Related Securities  Mortgage-backed and related securities  **Index**: Barclays Mortgage-Backed Securities Index |

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| Large-Capitalization Value Stocks  Stocks in Standard and Poor's 500-stock index with high book-to-price ratios  **Index**: Sharpe/BARRA Value Stock Index |

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| Large-Capitalization Growth Stocks  Stocks in Standard and Poor's 500-stock index with low book-to-price ratios  Index: Sharpe/BARRA Growth Stock Index |

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| Medium-Capitalization Stocks  Stocks in the top 80% of capitalization in the U.S. equity universe after the exclusion of stocks in Standard and Poor's 500 stock index  **Index**: Sharpe/BARRA Medium Capitalization Stock Index |

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| Small-Capitalization Stocks  Stocks in the bottom 20% of capitalization in the U.S. equity universe after the exclusion of stocks in Standard and Poor's 500 stock index  **Index**: Sharpe/BARRA Small Capitalization Stock Index |

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| Non-U.S. Bonds  Bonds outside the U.S. and Canada  **Index**: Salomon Brothers' Non-U.S. Government Bond Index |

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| European Stocks  European and non-Japanese Pacific Basin stocks  **Index**: FTA Euro-Pacific Ex Japan Index |

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| Japanese Stocks  Japanese Stocks  **Index**: FTA Japan Index |

The intention of the style analysis was to explain the exposures of a portfolio. It would also provide some explanation of the returns based on market exposures versus those that would naturally be attributed to security selection.

**Click here to view the analysis shown in the 1992 article detailing the style analysis of Fidelity Magellan for the period 1985-1990.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| As can be seen below, the analysis of the Fidelity Magellan fund at the time was based on 60 monthly observations of performance history and indicated that 97.3% of the performance was determined from style exposures while approximately 3% of the return was generated by stock selection.  fmf_pie  The second graph provides insights into the exposures identified in the style analysis, showing that the fund showed strong exposure to growth stocks as well as medium and small cap stocks. **Click the blue links to learn more.**  fmf   |  | | --- | | **Growth Stocks**  Based on the Sharpe Analysis, the Magellan Fund had sizeable exposure during the period reflective of exposure biased to growth stocks. |  |  | | --- | | **Medium Stocks**  Another major component attributing to the returns during the period was an exposure to medium-sized stocks. This would indicate exposure to mid-cap companies. |  |  | | --- | | **Small Stocks**  The returns from the Magellan Fund during this time period indicated correlations explained best by exposures to small company stocks. In fact, the returns are consistent with an exposure of more than 15% towards smaller company stocks during this period. |  |  | | --- | | **European Stocks**  Interestingly, the returns analysis showed small exposures to European stocks with about 3-4% of the returns explained by a correlation to European stock exposure. | |

## Summary of Performance Analysis

As you have seen, performance analysis can be either relatively simplistic or can become very complex. The key is to ensure that you do more than a simplistic comparison of returns over a given period or series of periods when selecting managers. You must pay close attention to the sources of the returns generated. Using the approaches and calculations that have been discussed in this section of the course can help to provide a framework for you to conduct an effective review of a manager’s historical returns.

## Review Exercise

Select the correct answer to each question.

1. **\_\_\_\_\_\_\_\_\_\_ is a theoretical model describing the relationship between risk and return in the general marketplace.**

* CAPM
* Beta
* Coefficient
* Covariance

1. **The Capital Asset Pricing Model states that the expected return of a portfolio equals:**

* The tax-free rate plus a risk premium
* The risk-free rate plus a premium for the time value of money
* The risk-free rate plus a risk premium
* The market rate plus a risk premium

1. **A beta \_\_\_\_\_\_\_\_\_\_ than 1.0 implies the stock is \_\_\_\_\_\_\_\_\_\_ than the market; a beta \_\_\_\_\_\_\_\_\_\_ than one implies the stock is \_\_\_\_\_\_\_\_\_\_ than the market.**

* Less, riskier; greater, less risky
* Less, less risky; greater, riskier

1. **Which of the following measures of return takes into account cash flows?**

* Arithmetic return
* Geometric return
* Time weighted return

1. **The CFA Institute Performance Reporting Standards require all of the following EXCEPT:**

* Calculation of a time weighted rate of return using a minimum of annual valuations and geometric linking of those returns
* Accrual accounting for fixed-income securities
* Inclusion of returns from cash and cash equivalents
* Reporting gross of fees numbers along with a fee schedule

1. **Which of the following statements is true?**

* For both the Sharpe Ratio and the Treynor Ratio, higher ratios are preferred.
* Higher ratios are preferred for the Sharpe Ratio; lower ratios are preferred for the Treynor Ratio.
* Lower ratios are preferred for the Sharpe Ratio; higher ratios are preferred for the Treynor Ratio.
* For both the Sharpe Ratio and the Treynor Ratio, lower ratios are preferred.

1. **Which of the following statements is true?**

* For both the Sharpe Ratio and the Sortino Ratio, lower ratios are preferred.
* Higher ratios are preferred for the Sharpe Ratio; lower ratios are preferred for the Sortino Ratio.
* For both the Sharpe Ratio and the Sortino Ratio, higher ratios are preferred.
* Lower ratios are preferred for the Sharpe Ratio; higher ratios are preferred for the Sortino Ratio.

The answers to these questions are found on the next page.

## Review Exercise – Answer Key

Select the correct answer to each question.

1. **\_\_\_\_\_\_\_\_\_\_ is a theoretical model describing the relationship between risk and return in the general marketplace.**

* **CAPM**

**Correct**.

* Beta

**Incorrect**. Try again.

* Coefficient

**Incorrect**. Try again.

* Covariance

**Incorrect**. Try again.

1. **The Capital Asset Pricing Model states that the expected return of a portfolio equals:**

* The tax-free rate plus a risk premium

**Incorrect**. Try again.

* The risk-free rate plus a premium for the time value of money

**Incorrect**. Try again.

* **The risk-free rate plus a risk premium**

**Correct**.

* The market rate plus a risk premium

**Incorrect**. Try again.

1. **A beta \_\_\_\_\_\_\_\_\_\_ than 1.0 implies the stock is \_\_\_\_\_\_\_\_\_\_ than the market; a beta \_\_\_\_\_\_\_\_\_\_ than one implies the stock is \_\_\_\_\_\_\_\_\_\_ than the market.**

* Less, riskier; greater, less risky

**Incorrect**.

* **Less, less risky; greater, riskier**

**Correct**.

1. **Which of the following measures of return takes into account cash flows?**

* Arithmetic return

**Incorrect**. Try again.

* Geometric return

**Incorrect**. Try again.

* **Time weighted return**

**Correct**

1. **The CFA Institute Performance Reporting Standards require all of the following EXCEPT:**

* **Calculation of a time weighted rate of return using a minimum of annual valuations and geometric linking of those returns**

**Correct**. A minimum of quarterly valuations is required.

* Accrual accounting for fixed-income securities

**Incorrect**. Try again.

* Inclusion of returns from cash and cash equivalents

**Incorrect**. Try again.

* Reporting gross of fees numbers along with a fee schedule

**Incorrect**. Try again.

1. **Which of the following statements is true?**

* **For both the Sharpe Ratio and the Treynor Ratio, higher ratios are preferred.**

**Correct**.

* Higher ratios are preferred for the Sharpe Ratio; lower ratios are preferred for the Treynor Ratio.

**Incorrect**. Try again.

* Lower ratios are preferred for the Sharpe Ratio; higher ratios are preferred for the Treynor Ratio.

**Incorrect**. Try again.

* For both the Sharpe Ratio and the Treynor Ratio, lower ratios are preferred.

**Incorrect**. Try again.

1. **Which of the following statements is true?**

* For both the Sharpe Ratio and the Sortino Ratio, lower ratios are preferred.

**Incorrect**. Try again.

* Higher ratios are preferred for the Sharpe Ratio; lower ratios are preferred for the Sortino Ratio.

**Incorrect**. Try again

* **For both the Sharpe Ratio and the Sortino Ratio, higher ratios are preferred.**

**Correct**.

* Lower ratios are preferred for the Sharpe Ratio; higher ratios are preferred for the Sortino Ratio.

**Incorrect**. Try again.

## Manager Monitoring, Rebalancing and Termination

While there is intense scrutiny in the due diligence and selection of managers, the process has to continue over time. In many respects, it is no different than analyzing and buying a stock. While there is a lot of research that takes place prior to the purchase, this does not mean that once it is purchased it no longer requires review. In fact, the review of the stock would continue as long as you hold the investment. Manager or fund selection is no different.

For most fiduciaries, the monitoring phase is the most labor intensive and time-consuming activity of the investment management process and can also be the area where most fiduciary shortfalls occur. It is important to understand that the decisions a fiduciary makes with regards to “how monitoring will be carried out” will have a direct impact on all other phases of the investment management process.

## Manager Monitoring

Once the optimal portfolio has been designed and the investment policy statement prepared and implemented, the final critical step is the ongoing monitoring and supervision of the investment process. The monitoring function extends beyond a strict examination of performance; by definition, monitoring occurs across all policy and procedural issues previously addressed in this program.

A long-term investment strategy requires alteration only when the underlying factors of the investment objectives change. Changes to the long-term investment approach are best made when one of the following client factors change. To make this easy to remember, we use the acronym ***TREAT***.

* Tax status
* Risk tolerance
* Expected return
* Asset class preferences
* Time horizon

It is important to note that changes to TREAT tend to be infrequent, if not rare. You should work carefully with your clients to ensure that the ongoing reviews of their situation do not turn into reviews directed toward constantly reassessing existing policy. Clients should be consistently educated to maintain focus on the longer term nature of the investment markets and the Investment Policy that is in place and not become overly and unnecessarily emotional about market variations that will invariably occur. Constant changes in investment policy not associated with changes in the client’s situation tend to not only be counterproductive; they can also cause damage to long-term portfolio performance potential.

## Overview of the Monitoring Process and Requirements

In keeping with the duty of prudence, a fiduciary appointing a money manager (or selecting a mutual fund) must determine the frequency of the reviews necessary, taking into account such factors as:

1. The general economic conditions then prevailing;
2. The size of the portfolio;
3. The investment strategies employed;
4. The investment objectives sought; and
5. The volatility of the investments selected.

Some degree of informal monitoring should take place between the scheduled monitoring meetings so that immediate action can be taken when there are extreme or sudden deviations from the performance objectives established in the investment policy statement.

## Factors Involved in the Monitoring Process

There are a number of factors that need to be managed during the monitoring phase. **Click each factor to learn more.**

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| **The technology that will be employed** |
| Several features are important: (1) that the custodian, money manager (in the case of separate account managers), and advisor are on a common platform to permit the viewing of up-to-date information on the portfolio; and (2) that the electronic protocol permit the customization of reports – remember no one report format is going to “fit” all investors. |
| **The staff required to produce the reports** |
| Sophisticated technology often carries the price of requiring a sophisticated staff. |
| **The breadth of the implementation matrix** |
| Does the fiduciary want to limit implementation to certain vehicles (mutual funds versus separately managed accounts) and/or to certain asset classes? As an example, Peruvian government bonds might look tempting from an asset allocation standpoint, but can the Peruvian bond portfolio be properly monitored on an ongoing basis? |
| **Frequency of meetings** |
| The fiduciary requirement is the “periodic” review of the investment strategy. It is advisable to set the frequency to at least quarterly, and more frequent if the investment strategy has been implemented with volatile investments. Even if an investment committee or investor has indicated a desire for meetings less frequent than quarterly, the advisor should still produce a quarterly report for internal review and filing. |

In most situations where a separate account platform is being utilized, these issues will be addressed by the integration of the required desktop technology required to support the efforts of the client advisor. However, these are significant considerations if you are acting without this type of organizational infrastructure.

## Key Components of Manager Monitoring

Monitoring includes an analysis of not only *what happened*, but also *why?* The analysis combines the elements of:

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| **Performance Measurement** | **Performance Evaluation** |
| the *science* | the *art* |
| Performance measurement primarily is a technical accounting function that computes the return of the portfolio and component parts. | Performance evaluation uses the information generated by performance measurement and holdings attribution to determine what contributed to, or detracted from, the portfolio’s return. |

## Monitoring Standards – Performance Measurement

An effective monitoring program should provide the fiduciary with sufficient information to evaluate the investment program’s strengths and weaknesses, and to keep the program on track in achieving investment objectives. The establishment of appropriate performance measurement objectives:

1. Facilitates effective communications between all parties involved in determining the continued appropriateness of the investment policy.
2. Facilitates the evaluation of the asset allocation strategy as directed by the investment policy statement with respect to the portfolio’s risk tolerance and modeled return expectations.
3. Facilitates effective communications between the fiduciary, service providers, and money managers and helps to confirm mutually agreed-upon goals and objectives of the investment policy.
4. Supports the qualitative judgment about the continued confidence, or lack of it, in the money manager’s abilities.

## Manager Monitoring – Performance Evaluation

As discussed in earlier sections of the course, performance measurement is not the only role the fiduciary has to play. It is also important to provide ongoing evaluation of the performance being generated by the manager as well.

While performance evaluation on an ongoing basis should be no different from the performance evaluation done in the due diligence and selection process, there are other powerful, and often used tools available that can help provide perspective and clarity as to the returns a manager is delivering to your client. In particular, the style consistency and ongoing correlation of the returns to the manager’s benchmark are important considerations. Of course, these are in addition to the other forms of performance evaluation already discussed in the first section.

## Style Drift

***Style drift*** is performance deviation from a pure or indexed return for the particular style (value, growth, etc.) in question. It normally occurs when a manager creates portfolios inconsistent with a particular style, i.e., buying value stocks in a growth portfolio or vice versa. This can occur inadvertently when a manager’s discipline is compromised or proactively when the manager’s style is out of favor in the market and the manager attempts to add alpha by buying stocks whose style is in favor at the time. By so doing, managers compromise the strategic allocation the fiduciary has created. Plotting the manager style analysis based on performance factors or return series data versus the index on a fixed grid permits measurement of style drift. Over time, you can identify when a manager begins drifting away from the intended and stated style, i.e., chasing returns. To measure style drift, manager returns are plotted on a matrix relative to the various style boxes. A manager’s returns will be clearly evident as there will be a snail trail. **Click here to view a “Snail Trail” for a manager who maintains style discipline.**

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| styledrift_graph1 |

In this situation, the monthly observations of performance indicate consistent exposure to the Large Cap Core arena. While there are some periods where the exposure wanders into the mid-cap area, the movements are not dramatic and the style trail remains tight indicating consistency relative to the style mandate. **Click here to view a “Snail Trail” for a manager that begins to chase returns and begins to encounter “Style Drift”.**

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| styledrift_graph2 |

As you can see, the manager begins the period with a large-cap core orientation, but gradually begins to drift into a mid-cap core and growth bias indicating style drift.

## Tracking Error

***Tracking error*** is a measurement of a manager’s actual performance relative to a policy benchmark. It is defined as the standard deviation of the periodic differences between the manager’s return observations and the return observations of a specific benchmark. In effect, it is a measurement of the return dispersion versus the benchmark. The wider the dispersion of returns from the benchmark, the more significant the tracking error and this can be interpreted to show straying from the intended management approach and performance. Tracking error is a powerful and often used performance monitoring tool as it provides a way to track the performance relationship expected of a manager with statistical significance over short periods of time.

**Utilizing the Tracking Error Measurement**

The first step is for the fiduciary to establish the r-squared (correlation) to the benchmark that is required of the manager. Typically, the r-squared is higher for passive managers (0.99) and lower for active managers (0.90). With this policy established, the monthly or quarterly evaluation of tracking error can be made.

Because the tracking error is related to the vagaries of the benchmark, the measurement provides insights into when a manager is not able to effectively manage the portfolio within the defined and required constraints that have been established. When the tracking error of the manager strays outside of the bounds established, it is indicative of a manager that might be straying outside of the risk exposure parameters that have been defined, or could be an indication of a manager straying from their style mandate or discipline. While it is not necessarily indicative of a problem in every situation, tracking error can be a quantifiable way to evaluate a manager’s performance over various periods.

## Other Factors to Review

On a periodic basis, the fiduciary should review whether each money manager and/or mutual fund continues to conform to the due diligence search criteria applied during the selection phase of the process; specifically:

1. The manager's adherence to the guidelines established by the investment policy statement.
2. Material changes in the manager's organization, investment philosophy and/or personnel.
3. Any legal, SEC and/or other regulatory agency proceedings that may affect the manager.

## Client Communication

While there is no explicit requirement that the monitoring meetings and performance reviews be documented in writing, best practices and general fiduciary requirements suggest otherwise. The reports should include, at a minimum, the performance of each money manager and/or mutual fund against indices, peer groups, and the performance objectives established in the investment policy statement.

## A Case Study – “Trying Times”

Here is a situation you may have found yourself in at some point in your career. You have a client that you have spent a great deal of time working with and have finally established a significant size account. You have developed an Investment Policy Statement and selected managers and investments designed to meet this client’s objectives.

The performance in the account has not been very good, as the markets have been in turmoil for the last three months. In every asset class and every investment you have chosen, the account is in negative territory. Given that this client is very demanding, you have prepared for a meeting with the client. Immediately after starting the meeting, the client says, “I have hired you in good faith based on the approach you showed me and your described ability to select investment mangers. What is going on? Everything you have selected has performed poorly. I need an explanation!”

Though there are no required steps that should be followed in presenting a performance report, we suggest the following format listed below. **Click each step to learn more.**

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| **Step 1** |
| **Overview**  Start with an overview of the capital markets. Review how each of the broad asset classes perform, even if certain asset classes are not represented in the investment strategy being reviewed. Which segments of the market are hot and which are not? |
| **Step 2** |
| **Review the Overall Portfolio Strategy**  Next, review the particular investor’s or investment committee’s specific asset allocation strategy. Remind the investor or investment committee of their modeled returns and loss limits. This is quite possibly the most important step in the overall meeting as it re-establishes the client’s objectives, rather than letting the short-term market vagaries define the construct of the discussion. |
| **Step 3** |
| **Review the Actual History of the Portfolio Relative to the Objectives**  While the strategy is critical, it should be discussed in the context of the progress being made towards the identified objectives of the client. Important here is to show that investing is a long-term process. To make sure that you are not immediately drawn into a short-term performance discussion, begin by discussing how the investor or investment committee is progressing in meeting the overall investment objectives established in the Investment Policy Statement. |
| **Step 4** |
| **Review Recent Period Performance**  Once addressing the big picture items listed above, it is now relevant to report and discuss how each manager and/or mutual fund is performing relative to an appropriate index, peer group, and monitoring objectives established in the investment policy statement. A common mistake in preparing the investment policy statement is the failure to compare money managers to appropriate peer groups, or comparing managers to benchmarks that may not be relevant.  For example, not all equity managers should have their performance compared to the S&P 500. Equity managers that follow a value strategy should be compared against other value managers. |
| **Step 5** |
| **The Call to Action**  Finally, outline the “call to action” – what steps need to be taken to meet the objectives established in the investment policy statement. Do we need to rebalance the portfolio? Put a manager on the Watch List? Replace a mutual fund?  For any specific action that you would recommend or want to discuss with the client, make sure that you are fully prepared to guide them through the pros and cons of the issue and help them make a rational decision in light of their objectives, the IPS and their overall market environment at the time. |

## Establishing Specific “Watch List” Procedures

Important in the development of a good investment approach where managers are selected is a defined and well-communicated protocol for putting a manager on the “Watch List”, or as referred to in some firms as a firm “Under Review”. There will often be times when a money manager is beginning to exhibit shortfalls in one or more metrics (e.g., deviation in investment process, violation of sell discipline, change in personnel), but in your opinion, does not warrant immediate termination. However, you have to make sure that you have a documented approach to not only the investment policy and the methodology for manager selection, but also a documented approach for putting a manager on a program where you focus greater scrutiny on their progress and results.

While not a comprehensive list, the following provides an example of the criteria that can be used to identify when to put a money manager on your *Watch List.*

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| **Watch List**   1. A money manager’s 3-year, risk-adjusted return (Sortino, Alpha, and/or Sharpe ratios) falls below the index median risk-adjusted return. 2. Performance from stock selection for fundamentally driven managers is declining. 3. There is a change in the professionals managing the portfolio. 4. There is a significant decrease in the product’s assets. 5. There is an indication the money manager is deviating from his or her stated style and/or strategy. 6. A money manager performs below median for his or her peer group over a 1-, 3- and/or 5-year cumulative period. 7. There is an increase in the product’s fees and expenses. 8. Any extraordinary event occurs that may interfere with the manager’s ability to fulfill his or her role in the future. |

## Monitoring and Evaluating

Once a manager is placed on the Watch List, you now have to establish your procedures for monitoring and evaluating the manager in greater detail. The evaluation of a money manager or fund placed on the Watch List may include:

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| **Watch List: Manager Evaluation**   1. Writing a letter to the money manager asking for an explanation of the underperformance. 2. Analyze recent transactions, holdings, and portfolio characteristics to determine the cause for underperformance and to check for a change in investment style and/or strategy. 3. Meet with or discuss directly with the money manager to gain insight into organizational changes and any changes in strategy or discipline that might be the underlying cause of the underperformance. |

The decision to retain or terminate a manager cannot be made by a formula or black box. It is the fiduciary’s confidence in the money manager’s ability to perform in the future that ultimately determines the retention of a money manager.

## Rebalancing the Portfolio

In some situations, you will need to rebalance the overall client portfolio and reallocate assets from one manager/portfolio to another in the mix in order to ensure compliance with the Investment Policy Statement. The rebalancing limits established in the investment policy statement define the points when a portfolio should be reallocated to bring it back in line with the strategic asset allocation. The discipline of rebalancing, in essence, controls risk and forces the portfolio to move along a predetermined course. The objective is to take gains from stellar performers or favored asset classes, and reallocate them to lagging styles.

The process of setting an appropriate rebalancing limit is somewhat subjective. Ordinarily, rebalancing limits of plus or minus five percent should keep the parameters tight enough to maintain the risk/return profile of the strategy, yet require rebalancing only once or twice a year. As an example, if the strategic allocation for large-cap growth is 20%, then the rebalancing limits would be set at 15% and 25%. There are no specific rules that you are required to follow. You might determine that a 10% limit is more appropriate. The key is establishing a definitive standard and maintain compliance with the standard, or document and communicate with the client situations where you make exceptions.

## Tax Implications in Rebalancing

One issue to keep in mind in the re-balancing and re-allocation process pertains to the potential tax implications involved. For taxable client portfolios, the fiduciary should be constantly aware of the tax implications of re-balancing. When it is necessary to re-balance, the fiduciary should estimate the cash flows over the next quarter to determine if the portfolio can be re-balanced with contributions or disbursements.

In most cases, either natural cash flows from the investments themselves, or additions and disbursements from/to the client can be invested in such a way as to keep the portfolio within the established allocation constraints, without having to actually shift assets from one portfolio or manager to another.

## Manager Watch List Procedures and Termination

In almost every case, investment decisions that have been made through careful screening and analysis will not encounter immediate, unforeseen circumstances requiring rapid change. While managers will certainly experience periods where their process is a bit out of favor and performance wanes, there should be defined protocols for identifying managers who are placed on the Watch List, notified of the action, and then tracked more closely over the following periods. The role of the fiduciary is to have a specific framework for monitoring the managers and their performance over time in order to protect the best interests of your clients. In addition to performance, there are other variables as well that should be continually used in the ongoing scrutiny of a manager.

Keep in mind that the decision to retain or terminate a manager cannot be made by a formula or black box. It is the fiduciary’s confidence in the money manager’s ability to perform in the future that ultimately determines the retention of a money manager.

## Conclusion

The intelligent and prudent management of investment decisions requires the fiduciary to maintain a rational, consistent investment program. The myriad array of investment choices on Wall Street understandably can often result in “analysis paralysis” from information overload. Fiduciaries clearly need a framework for making investment decisions that allows them to consider developing investment trends and to thoughtfully navigate the possibilities.

The ideas, approaches and practices identified in this course prescribe a timeless and flexible process for the successful management of investment decisions. Once familiar with the *Practices*, the fiduciary will understand that no new investment product or technique will be good or bad per se, nor will it be valuable because it worked for other fiduciaries.