# TOTAL PORTFOLIO BENCHMARKING

## Introduction

**Written By:**

**RVK, Inc.**

Objectively measuring a diversified investment portfolio's performance seems like a straightforward endeavor, but it has become increasingly complicated over the years. The purpose of this paper is to assist asset owners and fiduciaries in the selection and interpretation of benchmarks used to measure total portfolio performance. RVK's 35 years of experience working with clients has allowed us to witness the influence these measures can have on asset owner decision-making and ultimately, portfolio results.

First, it is important to distinguish that a benchmark can take a variety of forms, most of which we will cover in this paper. For the sake of simplicity, we organize the categories by the following:

- **Objective or financial health-based benchmarks**
- **Reference portfolios**
- **Target and actual allocation indexes**
- **Peer group comparisons**

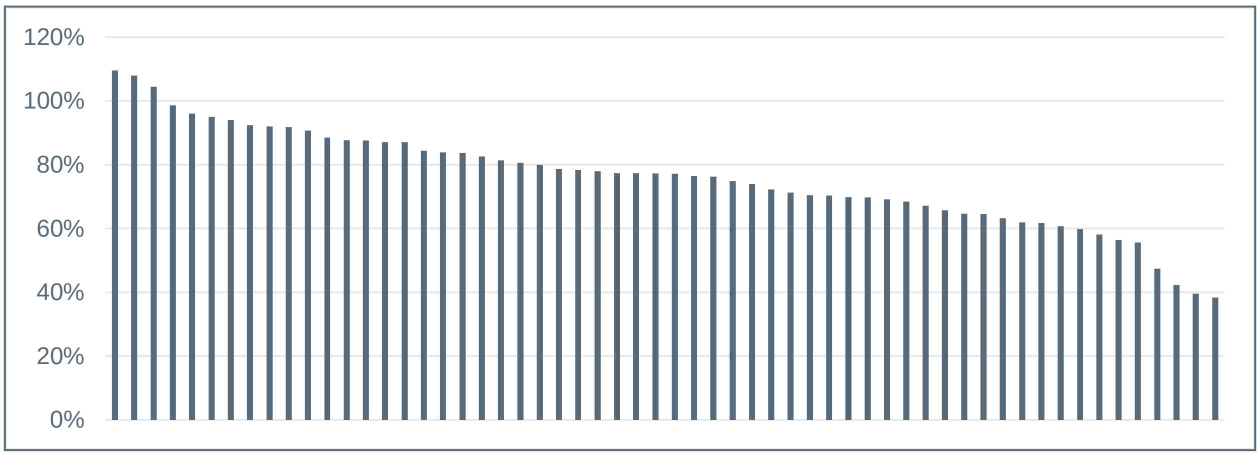
We would also note that several reputable bodies have published "best practices" on the features of any benchmark, including the CFA Institute. For the purpose of this paper, we will be using the CFA Institute's guidance—slightly modified—to assist in the analysis of each benchmark. While the information presented by the CFA Institute is typically meant for investment manager benchmarking, we believe it can also provide useful guidance in constructing appropriate benchmarks for an asset owner's total portfolio. These adapted characteristics include:

- **Specified in advance**: The benchmark is specified prior to the start of the evaluation period.
- **Relevant**: The benchmark reflects the investment mandate objective.
- **Measurable**: The benchmark's return is readily calculable on a reasonably frequent basis.
- **Unambiguous**: The identities and weights of underlying constituents can be clearly identified and replicated by other parties.
- **Representative of current investment opinions**: The benchmark reflects opinions and associated strategy choices of the asset owner.
- **Accountable**: The asset owner recognizes and accepts accountability for any deviations from the benchmark.
- **Investable**: It is possible to simply hold the benchmark.

## Background

Divergence in investment strategy among similar asset owners, the expansion of investment options, and the challenging list of desirable criteria previously noted has made the creation of a single broadly accepted, industry-wide total portfolio benchmark nearly impossible. The challenges posed by these fundamental issues are exacerbated when parties seek to (1) characterize the performance of the total portfolio via comparisons to the performance of a single market index, or (2) compare the performance of the portfolio to another fund or funds, while ignoring critical differences in purpose, timeframe, and risk tolerance agreed to by the respective decision-makers for these funds. As an example of this latter point, if we take recent survey data from RVK's 2020 Public Fund Report, we can see the difference in funded ratio—a key measure in guiding risk tolerance—can vary widely as shown in **Figure 1** below. Differences of this magnitude in funded ratio or other fund metrics can have a material effect on the risk preferences and investment strategies pursued by the respective fiduciaries.

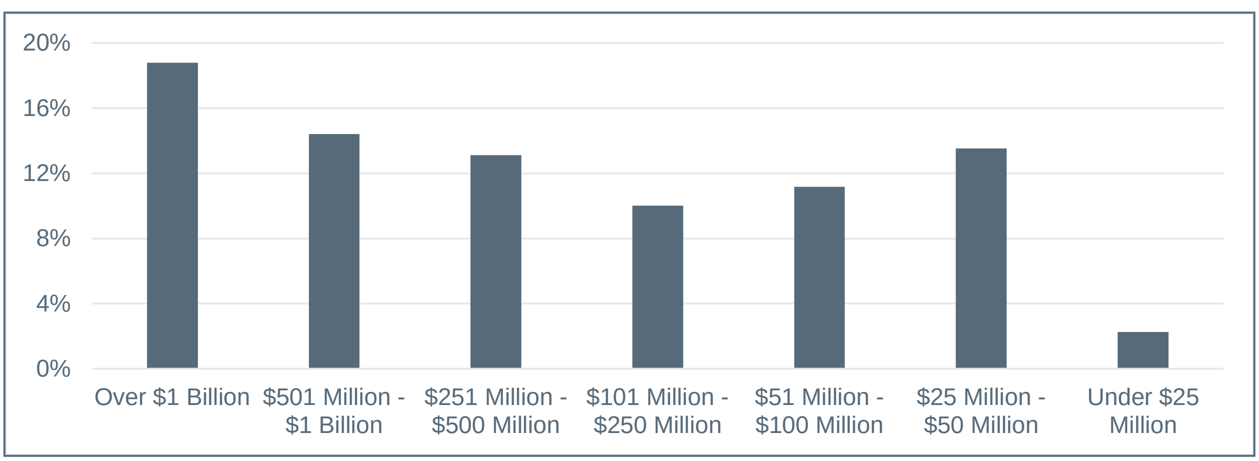
**Figure 1: Funded Ratio of Individual Public Funds in Universe**




Source: 2020 RVK Public Fund Report

The same concept can be illustrated using survey data from the National Association of College and University Business Officers (NACUBO); **Figure 2** shows the wide variance in how dependent underlying universities and colleges are on endowment spending.

**Figure 2: Percentage Operating Budget Funded by Endowment**




Source: 2020 NACUBO Study

The data in **Figures 1** and **2** illustrate a critical point often overlooked: ***asset owners have unique liabilities, income streams, and spending needs, and wisely adopt different risk tolerances, meaning a single, uniform benchmark cannot be applied to all.*** There is likely not a "right" answer to the question, but we will attempt to offer some guidance for asset owners in how to construct and analyze total portfolio benchmarks.

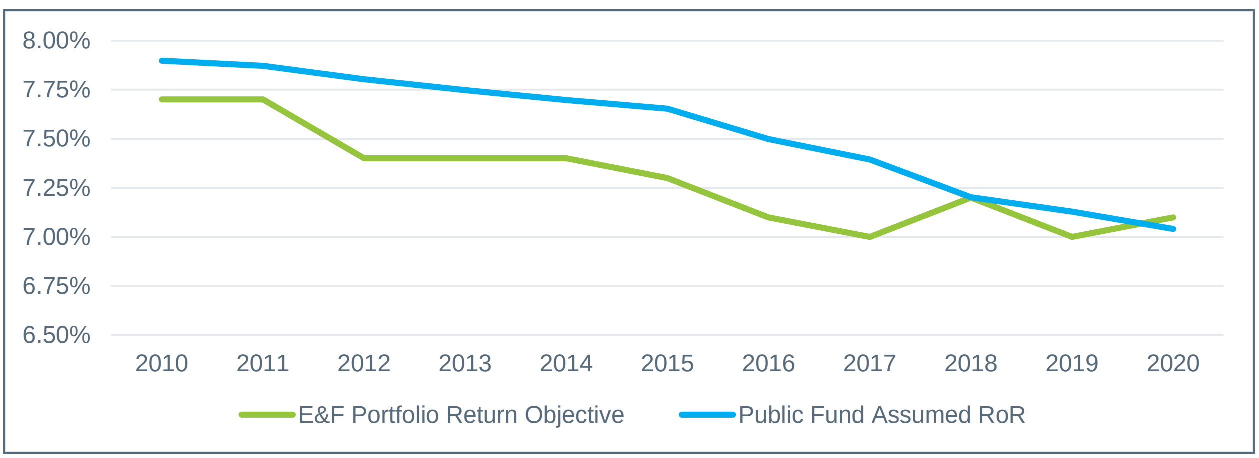
## Objective and Financial Health-Based Benchmarks

This category of benchmarks is broad, unified by a focus on the most important goal for asset owners: meeting long-term fund objectives. These objectives include satisfying pension liabilities, meeting the spending needs for endowments and foundations, paying insurance claims, funding a known lump-sum obligation such as the decommissioning cost for a nuclear powerplant, or some other absolute level of return needed to ensure the assets provide adequate capital to satisfy the portfolio's purpose. Benchmarks measuring the financial health of a fund over time are important indicators of its ability to fulfill its purpose. A clear example is the funded status of pension plans, the calculation of the asset/liability match, and the resulting surplus for insurance funds.

### Return Objectives

An asset owner's ability to consistently meet or exceed an assumed investment rate of return—which when paired with contributions, premiums, or other incoming cash are expected to achieve the fund's purpose—is perhaps the most important measure of long-term financial health. Pensions unable to meet assumed rates of return over time face the need for additional contributions and/or potentially reduced benefits. In the case of endowments, it can have material consequences for the capital budgets and ongoing operations of the institutions they support. Both of these measures have trended downward as illustrated in **Figure 3**, somewhat in lockstep with the reduction of capital markets assumptions.

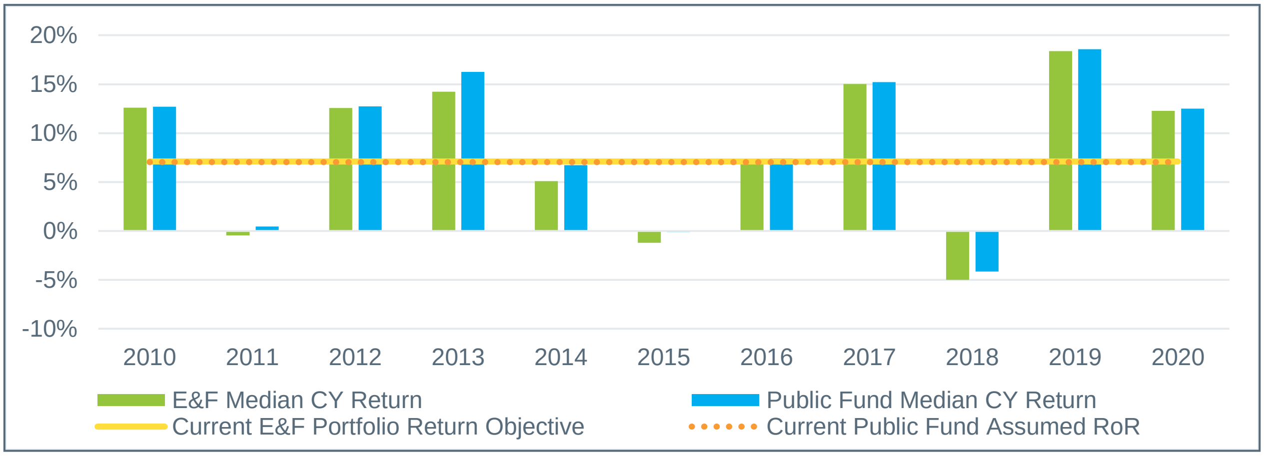
**Figure 3: E&F Portfolio Return Objective and Public Fund Assumed Rate of Return**




Source: 2020 NACUBO Study, 2020 RVK Public Fund Report

Absolute return measures are simplistic enough, but are meant to measure ***long-term average performance***. The likelihood of precisely matching a specific return target in any one specific calendar year is extremely low; markets are volatile and asset owners experience material differences in their annual returns compared to these targets, as illustrated in **Figure 4** on the following page.

**Figure 4: E&F and Public Fund Expected versus Actual Annual Returns**




Source: 2020 NACUBO Study, 2020 RVK Public Fund Report, Investment Metrics/BNY Mellon Plan Sponsor Peer Group Data

It is unlikely that an absolute return target is meaningful over any short to intermediate timeframe. These measures are more appropriate as asset owners discuss long-term contributions, insurance policy pricing, and spending issues, rather than the success of the investment portfolio over most periods. A target rate of return ignores the current market environment and deemphasizes the decisions asset owners must inevitably make in their attempt to optimize risk and return relative to the opportunities currently available or expected in the capital markets.

**Best Practice Checklist for Assumed and Spending Rates as Benchmarks**

| Specified in Advance | Relevant | Measurable | Unambiguous | Representative of Current Investment Opinions | Accountable | Investable |
|---|---|---|---|---|---|---|
| Yes | Yes | Yes | Yes | No | No | No |

**Financial Health Benchmarks**

The overall health of an enterprise relative to its needs often plays a meaningful role in portfolio construction, risk tolerance, and liquidity stance. However, it is important to note that financial health is one of the few “benchmarks” which is highly dependent on factors outside of the investment portfolio and program. For example, a public pension’s funded ratio is largely a function of three different variables: contribution policy, benefit policy, and current investment assets. A single-employer corporate pension’s funded status is far more dependent on current discount rates via corporate bond yields and is calculated more frequently using readily available data.

While these financial health benchmarks are critical for the viability of any investment program, they are often more relevant in the context of actuarial studies and overall strategy discussions. These measures may help mold the high-level decisions relative to assets, but are rarely used in the day-to-day management of any investment portfolio.

## Reference Portfolios

Reference portfolios represent a passive, liquid, and low-cost implementation of an asset owner's stated risk tolerance and time horizon. These portfolios are often simple blends of well-known market indexes, such as 60% S&P 500 Index and 40% Bloomberg US Aggregate Bond Index, though many others are possible. The popularity of reference portfolios has increased as many of the world's largest sovereign wealth and public pension funds have adopted these in policy.

Reference portfolios can be considered one of the most basic forms of benchmarks; they often represent the starting point for any asset owner's portfolio as it is a moderately diversified—albeit simple—portfolio implementation that loosely tracks the purpose of any given portfolio. This style of benchmark is often used to compare to an asset owner's more diversified asset allocation choices, measured by the "target allocation index" discussed later in this paper. Relative performance between a reference portfolio and a target allocation index describes whether or not further diversification—beyond the simple asset class exposures which make up the reference portfolio—has been additive to the portfolio's performance.

Selecting a proper reference portfolio still requires intimate knowledge of the asset owner's overall risk tolerance and preferences or restrictions. While it is very much an art, there are a few questions each asset owner should be able to answer before selecting a reference portfolio for use:

- Is the level of risk inherent in the reference portfolio consistent with the risk preferences of the fiduciaries?
- How do both the expected risk and return of the reference portfolio compare to the diversified portfolio?
- Is the expected risk and return of the reference portfolio consistent with the total fund's purpose—paying a particular stream of benefits over time or ensuring payment of a particular stream of expected insurance claims?
- Will the portfolio be implemented with local securities only, or will it take a more global approach?
- What is the likelihood of the reference portfolio meeting the assumed rate of return or spending rate?

**Best Practice Checklist for Reference Portfolios as Benchmarks**

| Specified in Advance | Relevant | Measurable | Unambiguous | Representative of Current Investment Opinions | Accountable | Investable |
|---|---|---|---|---|---|---|
| Yes | Depends | Yes | Yes | Depends | Yes | Yes |

## Target and Actual Allocation Indexes

*Target Allocation Index*: One of the most widely used and referenced benchmarks for a total portfolio is the "Target Allocation Index." While it may be referred to by a variety of labels (e.g., "policy index"), we define a Target Allocation Index as a weighted benchmark based on the benchmarks of the underlying asset class portfolios found in the asset owner's investment policy. For example, an investment policy may list the approved targets to varying asset classes, with each associated benchmark as seen in the table on the following page.

| Asset Class | Target % | Benchmark |
|---|---|---|
| Global Equity | 55 | MSCI ACW IMI |
| Global Fixed Income | 35 | Bloomberg Global Aggregate Bond Index |
| US Core Real Estate | 10 | NCREIF ODCE |

Using this hypothetical portfolio, the Target Allocation Index would simply be a blended benchmark consisting of 55% MSCI ACW IMI, 35% Bloomberg Global Aggregate Bond Index, and 10% NCREIF ODCE. An asset owner would also need to select the frequency at which the Target Allocation Index is "rebalanced," but typically it is assumed to be done monthly or quarterly. The "rebalancing" frequency simply reflects the interval at which the Target Allocation Index is brought back to its target weights, but does not necessarily align with the actual rebalancing of the portfolio.

*Actual Allocation Index*: The "Actual Allocation Index" is similar to the Target Allocation Index and is based on the same construct with one key difference. Instead of comparing the total fund's performance against the target allocation set in the Investment Policy, this approach compares the total fund's performance against a weighted benchmark using the actual monthly portfolio weights. As market movements and cash flows continually cause portfolio allocations to deviate from their stated targets, this is a useful and complementary tool in that it focuses exclusively on the combined underlying manager and asset class structure performance, removing any under- or overperformance due to short-term market movements and cash flows. The Actual Allocation Index also helps address the challenges inherent in benchmarking portfolios with allocations to illiquid asset classes. These funds may deviate from stated target allocations significantly due to the cash flows inherent in private equity, private real estate, etc., as well as their allocation percentages changing as a result of rising or falling values in the liquid allocations in the fund (often referred to as "the denominator effect"). Using the Actual instead of Target Allocation Index mitigates a portion of the benchmark mismatch.

Over time, the Actual Allocation Index will closely track the Target Allocation Index assuming the portfolio is close to its targets and rebalanced with some regularity. Small differences will always exist between the two, but the following table may assist asset owners in determining which benchmark is more relevant at the time:

| | **Long-Term Asset Allocation Performance** | **Long-Term Relative Performance** | **Short-Term Relative Performance** | **Success of Asset Class Portfolio Structure** | **Success of Underlying Managers** |
|---|---|---|---|---|---|
| **Target Allocation** | | | | | |
| **Actual Allocation** | | | | | |

Both benchmarks are a reasonable proxy and measurement tool for the total portfolio's performance, assuming they are constructed properly. We believe that as the illustration above suggests, they are best viewed as similar but complementary total fund benchmarks.

*Allocations to Alternative Assets Present Special Challenges*: Each underlying asset class benchmark in both the Target and Actual Allocation benchmark approaches should follow rules similar to those we have discussed for total fund benchmarks, and in particular, reflect as closely as possible the actual underlying exposures. While the challenges in benchmarking alternative assets merits a deep examination, it is beyond the intended scope of this paper. That said, we would be remiss to not spend a moment addressing them briefly. For the sake of simplicity, we have highlighted these issues for three broad categories: hedge funds, real assets, private equity.

- **Hedge fund** benchmarks are typically peer groups, constructed to reflect the performance of a group of similar strategies. These benchmarks are not investable, lack transparency, and the underlying constituents have incredibly disparate mandates.
    - ◊ We would also note the frequent use of an absolute return target (e.g., cash + 5%) as a benchmark for many hedge fund allocations. While reasonable for long-term performance, it creates many issues over short to intermediate timeframes.
- **Real asset** benchmarks fall into two categories: publicly traded and peer group. Asset classes such as public REITs and infrastructure are well-served by their respective public index, but asset owners often implement real asset allocations via open-ended or closed-end private fund structures. Peer groups benchmarks attempt to better reflect relative success versus the implementation decisions by other asset owners, but inevitably have the same drawbacks as those used for hedge funds.
    - ◊ We also would note the frequent use of an absolute return target (e.g., inflation + 5%) as a benchmark for many real asset fund allocations. Similar to return targets for hedge funds, short to intermediate relative performance differences can be pronounced under this approach.
- **Private equity**—including **private credit** strategies—tend to be benchmarked to a peer group based index as well, but come with additional unique considerations. The most relevant performance measure for each individual strategy within this broad category is based on an IRR and multiple of invested capital calculations, but a total portfolio benchmark is expressed in time-weighted returns, creating an inherent mismatch. The use of a public benchmark plus a premium (e.g., S&P 500 + 3%) attempts to create a better approximation for performance expectations for these assets, but also leads to significant mismatch in strategy versus benchmark performance depending on the maturity of the private equity or credit program. Finally, the lagged reporting of valuations in private markets also creates challenges in benchmarking, some of which can be muted by the use of a lagged index; however, not all reporting timelines are the same and there will almost certainly always be some amount of "noise" in the performance of private markets allocations versus the stated benchmark.

While there continue to be shortfalls in the construction of a Target or Actual Allocation Index, these two options are often powerful tools in judging the success of an investment program, particularly when used in tandem. The asset allocation decisions made by asset owners will have the largest effect on long-term performance—return and risk—and the Target Allocation Index reflects these choices better than anything else.

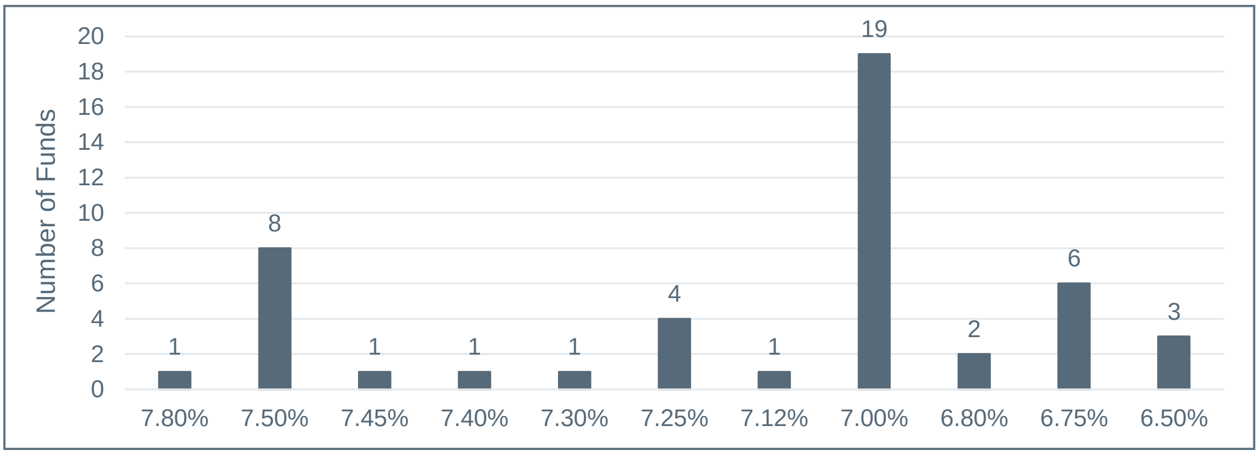
**Best Practice Checklist for Target and Actual Allocation Indexes as Benchmarks**

| Specified in Advance | Relevant | Measurable | Unambiguous | Representative of Current Investment Opinions | Accountable | Investable |
|---|---|---|---|---|---|---|
| Yes | Yes | Yes | Yes | Yes | Yes | Depends |

## Peer Group Comparisons

As is true with almost any endeavor, comparison to others is inevitable and often receives notable—often excessive—attention. The world of institutional investors is no different; however, we have observed that comparisons to funds or groups of funds are often made with limited insight into the composition of the peer group and without proper reflection for the difference in unique circumstances of peer group constituents. It is true that an asset owner can find a set of peers with similar asset size and plan type, but that these two characteristics are hardly sufficient to ensure they are truly peers. Overly simplified decisions about what constitutes a true peer renders comparison against that group suspect at best, and potentially dangerously misleading at worst. Such a simple approach may well mask significant underlying differences in circumstances—differences that can and often should require different investment strategies yielding different outcomes—all of which are appropriate to the fund in question, but not at all comparable to the investment results of others. Take our earlier example of the dispersion of public pensions' assumed rates of return, as illustrated in **Figure 5**.

**Figure 5: Dispersion of Public Pension Assumed Rates of Return**




Source: 2020 RVK Public Fund Report

All of these asset owners whose assumed rates of return are shown in Figure 5 above could be considered peers in that they are all public defined benefit plans. But even a modest amount of additional analysis would reveal that they may not be that similar at all. Simply applying a broad filter such as plan type, asset size, or both ignores other key metrics which greatly influence an asset owner's decision-making process when it comes to total fund asset allocation and risk constraints. Examples include, but are certainly not limited to:

- Funded status
- Contribution policy
- Payout ratio
- Cash flow needs
- Governance
- Legal restrictions
- Plan liability structure: COLA's, demographics, early retirement options, closed benefit tiers, etc.

Peer group comparisons can be useful, but should not be a point of major emphasis for asset owners and their decisions. Rather, they should be used as an additional tool to assist in the portfolio-management process. It is reasonable to check the market by looking to peers occasionally, but only with the understanding that each portfolio is created to satisfy the unique needs of a particular asset owner and work within constraints they face.

Peer groups can also create a horse race, simply induced by the pressure of outside comparisons. That is, in order to beat the peer group, investors continue to take incrementally higher levels of risk. This can ultimately lead to excessive risk taking in the pursuit of higher returns, potentially leading to poor outcomes.

A potential solution to some of these challenges is the creation of a custom peer group, with the goal of better aligning the characteristics and objectives of the constituents. The most relevant example is the creation of custom single-employer corporate pension plan peer groups; the difference in return objectives and implementation for those funds adopting a total return portfolio versus others in the peer group implementing a liability-driven approach is likely to be material. Simply applying an additional filter such as corporate pension portfolios with more than 40% in fixed income can create a better set of peers for an asset owner implementing a liability-driven approach.

**Best Practice Checklist for Peer Group Comparisons as Benchmarks**

| Specified in Advance | Relevant | Measurable | Unambiguous | Representative of Current Investment Opinions | Accountable | Investable |
|---|---|---|---|---|---|---|
| Yes | Yes | No | No | No | No | No |

## A Note Regarding Risk-Adjusted Returns

Though at several points in this white paper we have noted the importance of varying risk preferences in benchmark consideration, we have not discussed the role of comparative risk-adjusted returns, often measured by Sharpe Ratio or other similar metrics. There are divergent views on the use of such measures to judge total portfolio performance and indirectly, the success of the investment effort. We view this topic as a related conversation; however, it would likely require an entire white paper to thoroughly dissect and analyze the various considerations of utilizing risk-adjusted figures for comparison purposes. It is likely a complementary tool, much like many of the benchmarks noted above; however, we would caution that risk-adjusted figures are often more difficult to analyze amongst peers, most notably due to the difference in long-term objectives, risk tolerance, and the inconsistent valuation frequency between public and private markets.

## Summary

There is no perfect solution for asset owners attempting to objectively and fairly measure portfolio performance. However, there are a variety of tools which can be used in combination to give asset owners and their key constituencies a robust sense of the performance of the total fund. Each circumstance is unique and the choice of benchmarks should be done thoughtfully; we have included the below tables to assist in the selection and interpretation of the various options available.

| | Assumed/ Spending Rate | Financial Health Measures | Reference Portfolio | Target/Actual Allocation Index | Peer Group Comparisons |
|---|---|---|---|---|---|
| Long-Term Viability | Yes | Yes | No | No | No |
| Decision to Diversify | No | No | Yes | No | No |
| Success of Implementation | No | No | Yes | Yes | Yes |
| Manager Selection | No | No | No | Yes | Yes |
| Opportunity Cost | No | No | Yes | Yes | Yes |

| | Specified in Advance | Relevant | Measurable | Unambiguous | Representative of Current Investment Opinions | Accountable | Investable |
|---|---|---|---|---|---|---|---|
| Assumed/ Spending Rate | Yes | Yes | Yes | Yes | No | No | No |
| Reference Portfolio | Yes | Depends | Yes | Yes | Depends | Yes | Yes |
| Target/Actual Allocation Index | Yes | Yes | Yes | Yes | Yes | Yes | Depends |
| Peer Group Comparisons | Yes | Yes | No | No | No | No | No |

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[1]Between July and October 2020, Coalition Greenwich (formerly known as Greenwich Associates) conducted in-person and phone interviews and online surveys with 856 individuals at 704 of the largest tax-exempt funds in the US–including corporate and union funds, public funds, endowments and foundations, insurance general accounts, and healthcare organizations, with either pension or investment pool assets greater than $150 million. Study participants were asked to provide quantitative and qualitative evaluations of their asset managers and investment consultants, including qualitative assessments of those firms soliciting their business and detailed information on important market trends. RVK is one of three firms recognized in the large investment consultant category. The ratings may not be representative of any one client's experience with RVK; rather they are representative of those clients that chose to participate in the survey. The results are not indicative of RVK's future performance. To read the Greenwich press release, please refer to the following URL: https://www.greenwich.com/press-release/covid-19-crisis-put-investment-consultant-advisory-capabilities-test

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