Verus

Introduction to required return

April 2018

DANNY SULLIVAN, FRM, CAIA
Senior Associate
Director | Risk

VANCE CREEKPAUM, ASA
Senior Actuarial
Analyst

Introduction

Many public pension programs today are making significant, sometimes unpopular, decisions to lower discount rates and alter benefit structures to meet their funding obligations. More than ever, fiduciaries need a framework for decision-making to understand the risks engendered by these types of decisions: one that is clear, simple, and actionable. Most frameworks rely on an overabundance of assumptions that demand tremendous expertise to fully comprehend how dynamic and complex risks could be. What's more, the most common metrics used today are sensitive to many underlying actuarial and investment assumptions that could lead to the pursuit of divergent strategies. This paper introduces a simple metric, "required return," to cut through the fog of pension risk management and help some public plan sponsors[1] navigate the complexities of portfolio construction.

The landscape today

The thread that ties assets and liabilities together right now is the discount rate. More precisely for public plans, expected returns inform discount rates and discount rates define funded ratios. But a clear, dynamic, and direct relationship from expected return to funded ratio does not exist. *Figure 1* demonstrates this implicit relationship.

FIGURE 1 – RELATIONSHIP BETWEEN EXPECTED RETURN AND FUNDED RATIO

For the funded ratio to be an accurate reflection of a plan's health, the plan's assets must achieve returns equal to the discount rate.

It is critical to establish a more direct link between assets and liabilities because if discount rate assumptions are incorrect, any strategy built exclusively upon the measure will not likely achieve plan objectives. *Figure 2* shows the sensitivity of funded ratios to discount rates.

FIGURE 2 - IMPACT OF CHANGING DISCOUNT RATES

Discount rate	6%	7%	8%
Funded ratio	0.58	0.65	0.72

A fund with an 8% discount rate has a 72% funded ratio, whereas an identical plan with a discount rate of 6% has a funded ratio of 58%. The health of this plan appears very different from a funded ratio perspective but is similar from a cash flow perspective. If plans are extremely sensitive to the discount rate, the inevitable question becomes:

What return should the plan target with its asset allocation?

A different approach

Simplifying the framework starts with focusing on the right things. What if we eliminated the discount rate from the analysis and looked purely at the cash flows that the plan will make over its life? The question then becomes:

What is the investment return required to pay the plan's obligations?

This is the required return. To accomplish this, we use projected benefit payments, expected contributions, and the market value of assets to calculate the investment return necessary to meet obligations.

FIGURE 3 - REQUIRED RETURN

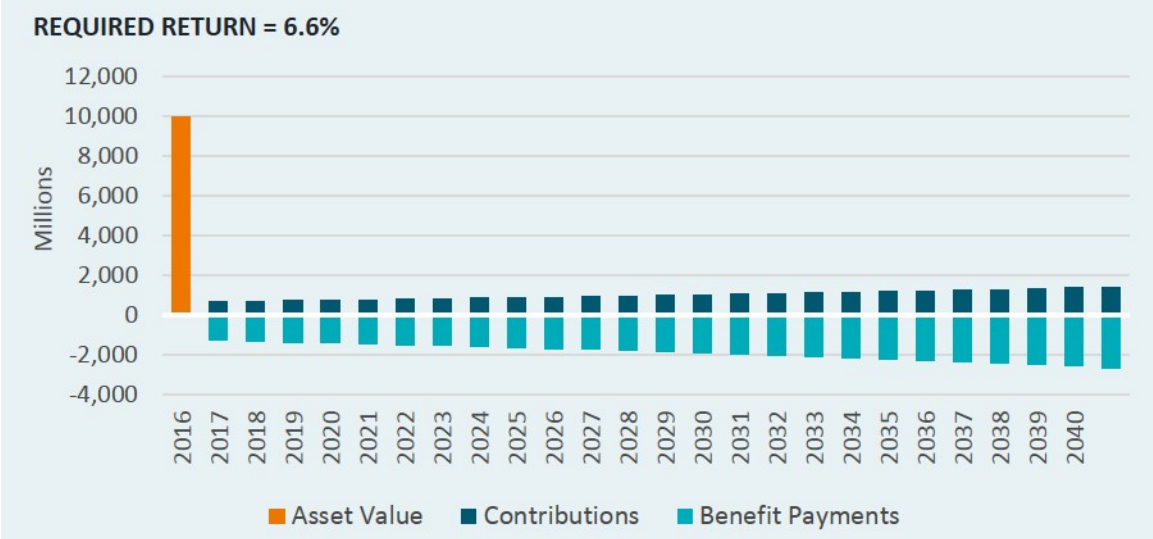

Figure 3 shows what this looks like. We can see that this plan has a required return of 6.6%. In other words, under its current contribution strategy, the plan must earn 6.6% on its assets each year to cover benefit payments. The required return makes the link between assets and liabilities clear. If the contribution strategy is affordable and the return calculated is within the organization's risk tolerance, then the plan can design an asset allocation to target the 6.6% return it needs.

If we integrate required return into the process, then the new framework starts with cash flows and ends with asset allocation. But we can take this one step further. We can analyze all potential investment targets and calculate all corresponding contribution amounts to view all return and contribution strategies in one intuitive chart.[2]

FIGURE 4 - REQUIRED RETURN FRAMEWORK

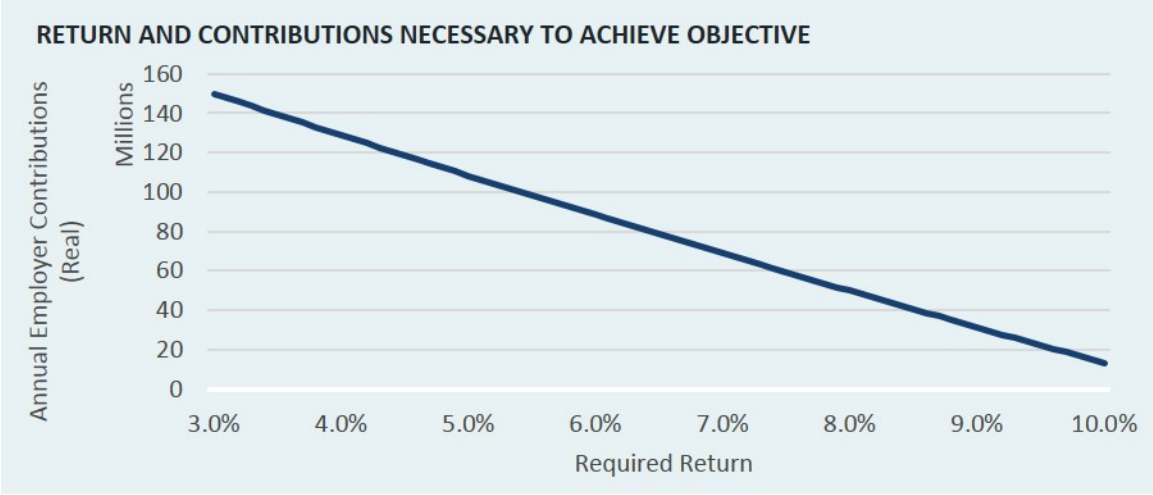

Figure 4 establishes the foundation for understanding the challenges pensions face going forward.[3] On the vertical axis are annual contribution amounts (adjusted for inflation). On the horizontal axis is the required return, that is, the return necessary for the plan to achieve its objective. This is an informative way to think about asset allocation and one that flows easily into a conversation about risk, the challenges implicit in targeting a given return, and whether the corresponding contribution level is right for the plan sponsor. The contribution and investment return discussion can take months to reach a conclusion, whereas this chart can display the relevant decision factors in one graph. *Figure 5* illustrates the new framework.

FIGURE 5 - INTEGRATING REQUIRED RETURN

While funded ratio reflects how healthy a plan is today, it makes no comment on whether contributions are sufficient to pay tomorrow's beneficiaries. Required return makes that connection between investment requirements and benefit payments. The metric shifts the focus of conversation to the likelihood of achieving the required return and the affordability of projected contributions. Risk tolerance, financial health, and asset allocation are all areas that can utilize this metric to inform decisions.

The levers you can pull

The goal of all pensions is to fulfill benefit payments. As the required return falls, the health of the plan improves. There are three main levers an investor can pull to influence required return: asset return, contributions, and benefit payments. The three actions to lower required return include growing assets, increasing contributions or in very rare cases, decreasing benefit payments.

FIGURE 6 - LEVERS INFLUENCING REQUIRED RETURN

Figure 6 demonstrates the inverse relationship of required return with contributions and asset returns. Increases in both asset returns and contributions cause the required return to fall. There are multiple combinations of asset mixes and contribution strategies that can improve the likelihood of plan success. *Figure 7* defines the prioritization of each lever based on the stability of the metric and the ability of the investor to influence it.

FIGURE 7 - PRIORITIZATION OF LEVERS

Metric	Stability	Ability to change	Priority
Contributions	Stable	High	1
Investment Risk	Volatile	High	2
Benefits	Stable	Low	3

A plan can best improve its chances of meeting future obligations by increasing contributions with the understanding that changes to the contribution policy can be difficult. Contributions reduce the funding gap with certainty. Contrast this with increasing portfolio risk; this can reduce the funding gap but includes uncertainty. Benefit changes are the lowest priority to influence required return due to its legal and political complications.

Conclusion

The required return metric is simple, intuitive, and actionable. This framework can display, in a single chart, the costs associated with any number of contribution commitments and targeted returns. It brings to the surface the risks implicit in investment and contribution

decisions by aligning them with a plan's financial objective. The metric is simple because it focuses on cash flows. It is intuitive because it tells you the return your assets must achieve to attain your objective. And for some plan sponsors, it is actionable because decisions become quantifiable and clear. The alignment of these decisions and plan projections can improve the likelihood of successfully meeting a plan's objective.

Notes & Disclosures

1. *This metric may not be appropriate for plans with poor financial health.*

2. *This chart reflects the cost of a given allocation decision and is not intended to be a suggested contribution strategy. Consult your actuary before making any decision regarding contribution policy.*

3. *Figure 4 assumes that the plan's existing discount rate remains constant between now and the time it achieves its objective. In practice, discount rates for pensions are reflective of a return expectation for its existing allocation; this chart is, therefore, accompanied by another chart that displays the impact of changing the discount rate and assumed return in tandem. The purpose of this chart is to illustrate the costs and returns necessary to achieve an objective under its existing assumptions.*

Verus

999 Third Avenue, Suite 4200
Seattle, Washington 98104
206-622-3700
verusinvestments.com