

Model portfolio framework



U.S. Corporate defined benefit pension plans

Russell Investments Research

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In the investment industry, we find ourselves drawn to the notion of model portfolios. Like benchmarks for individual mandates, a model portfolio helps guide the creation and evaluation of an asset-allocation decision. For corporate defined benefit (DB) pension plans, however, creating a model portfolio is notoriously difficult. Why? Simply put, no two plans are the same, and no two plan sponsors are the same.

Corporate DB plans come in many forms. Traditional plans may be annuity-only or have provisions where participants can elect lump sums. Cash balance plans have different interest crediting rates and payout provisions. Some plans may be early in their life cycle with a lot of active participants and a long time horizon, while others may be frozen with only a handful of retirees waiting to be paid out. Most plans are somewhere in between.

Plan sponsors also come in many forms. Some are companies that generate a tremendous amount of cash, which perhaps puts them in a position where they can take any risks they wish, under the assumption they can make contributions whenever needed. Others are not so well off and are counting every penny of earnings. For these sponsors, significant unanticipated cashflows, such as those to fund the DB plan, can mean the difference between staying in business and entering bankruptcy.

It is not easy to come up with a solution that fits every situation. So, with all of this in mind, what have we decided to do? Naturally, we have built a model portfolio framework for corporate DB plans.

Introduction

This is not a model portfolio like you are used to seeing. Rather, we have outlined a framework that provides conceptual guidance on four key themes, and thus has broad ranges for return-seeking asset exposures, interest rate hedge ratios, treasury/credit differentiation within fixed income and the potential inclusion of less liquid alternative assets.

Model portfolios are intended to reflect longer-term strategic beliefs, but it is inevitable that underlying circumstances and requirements will change, and thus the resulting guidance will evolve along the way. Indeed, our perspectives have advanced over time, alongside ongoing analysis and appreciation of the challenges we face. Tactical decisions may be overlaid where constantly changing market conditions present opportunities, but those decisions happen separately from this strategic analysis.

In the end, our model portfolio framework is intended to do what it should (i.e., help plan sponsors work through a complex asset allocation and risk management process) and nothing more. It provides a context for making critical strategic decisions, while also allowing for flexibility in tailoring a solution to a plan and plan sponsor's specific situation.

Framework

Knowing full well that no single solution is sufficient to encompass every situation, we have set out to build a model portfolio framework that will cover as much ground as possible based on the following four key themes.

First, we **focus on return needs** for the plan.¹ Each plan is different, and where a plan lands in the range of possibilities is influenced by the return it needs to achieve. How well is the plan funded? Is the plan open, closed or frozen? Can and will the plan sponsor make contributions to close any funding gaps?

Second, we want to **be deliberate about the surplus risk in the plan**.² The hedge ratio should not simply be the result of the amount of fixed income assets in the allocation. Most surplus risk comes from the longest-dated liability cash flows, so they need to be addressed explicitly. Manage the hedge to target as much risk mitigation as desired using your fixed income assets.

Third, **determine the mix of credit and treasury** allocations within the liability driven investing (LDI) portfolio in the context of the total plan. Manage the LDI portfolio to maximize capital efficiency on a total-portfolio basis by accounting for the size and structure of the rest of your portfolio (i.e., the return-seeking portfolio) and the liabilities. Simply evaluating the LDI portfolio in isolation against the liabilities will likely lead to a misunderstanding of the risks in the plan. It is important to recognize that return-seeking assets have significant credit spread exposure (or proxies for such), which will influence

other asset selection choices as risk allocations are examined within the total plan.

Fourth, and finally, proactively **consider the inclusion of less liquid assets**.³ These may not be for everyone, and varying circumstances and liquidity needs will rule the day. However, plans can benefit on a return, risk and total-plan basis from less liquid investments if they have a time horizon that permits it.



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Exhibit 1 represents our model portfolio framework. While the ranges seem overly wide in some instances, they are that way for a reason. Individual corporate finances and unique plan circumstances will weigh heavily on where a plan sits within these ranges. Our model portfolio framework takes into consideration as many things as are practicable but, even then, we accept that a plan sponsor may have valid reasons for allocating outside of these ranges.

We also note that our ranges are not intended to be symmetrical. As an example, we would recommend having a hedge ratio on the higher end of the range (where practical) to reduce surplus risk for the plan. Of course, where a plan sits in one range may influence where it sits in another range, as total-plan risk exposures are balanced.

Finally, these ranges are also not intended to constrain a plan's ability to make tactical decisions based on anything from equity market valuations, to interest rate views, to the credit cycle.

Exhibit 1: U.S. Corporate defined benefit pension plan model portfolio framework

| PVFB FUNDED STATUS* | % RETURN-SEEKING | TARGETED HEDGE RATIO** | TREASURY DURATION AS % OF LDI DURATION |
|---------------------|------------------|------------------------|--|
| <80% | 60 – 90% | 20 – 70% | 80 – 100% |
| 80% | 60 – 80% | 40 – 80% | 80 – 100% |
| 85% | 50 – 70% | 55 – 85% | 70 – 100% |
| 90% | 40 – 60% | 60 – 90% | 60 – 100% |
| 95% | 30 – 50% | 65 – 95% | 50 – 90% |
| 100% | 10 – 40% | 70 – 100% | 40 – 80% |
| 105%+ | 0 – 30% | 80 – 100% | 30 – 80% |

* PVFB funded status (based on accounting liabilities) considers the plan's expected future benefit accruals and acts as an equalizer across plans.

** Hedge Long First (HLF) method used to generate the highest practical hedge ratio, which may be lower than the lowest end of the range for particularly poorly funded plans or for plans with a relatively long liability duration.

1. Focus on return needs

The liabilities in this table are based on the Present Value of Future Benefits (PVFB),⁴ not the Projected Benefit Obligation (PBO, commonly referred to as the accounting liability) or the Funding Liability. The PVFB represents a projection of the value of all the benefits that will accrue to current participants over their entire careers. For a frozen plan, the PVFB will be the same as the PBO. For an open plan with a substantial number of active participants accruing benefits (and thus a large service cost relative to the liabilities), the PVFB can be significantly larger than the PBO. So, we view PVFB as providing a better indication of whether the plan has enough assets to pay benefits over the life of the plan than PBO.

Many factors should be considered in addition to the funded status of the plan. The size of ongoing benefit accruals, drag from benefit payments (for underfunded plans) and required PBGC premiums can impact the return needs of the plan and thus can affect the selection of an allocation to return-seeking assets. Likewise, a commitment by the plan sponsor to fund materially more than the minimum required contributions can influence allocation decisions.

The percentage of return-seeking assets is gradually decreased as funded status improves. A reasonably wide range of outcomes will accommodate a wide range of plan sponsors whose individual preferences and financial health can lead to different allocations. It is also not difficult to imagine circumstances where a plan would decide to choose an allocation outside of the given range.⁵ For a plan that is at or near 100% PVFB funded, there is little reason to take on excessive risk unless there is an expectation of increased growth and participation in the plan (i.e., a lot of new hires). But remember, a plan's unique circumstances will and should have a strong bearing on the final allocation.

2. Be deliberate about surplus risk

Surplus risk is too often an afterthought in allocation exercises, left as a residual of other decisions made within the portfolio. Instead, allocation decisions should be made deliberately around the level and sources of that risk, particularly the interplay between return-seeking assets, liability hedging fixed income and the yield curves used to value liabilities. Our model portfolio framework explicitly targets a hedge ratio, which we would expect to increase along with the funded status of the plan. As we increase the LDI portfolio, we have more assets to allocate toward achieving a higher hedge ratio. A higher hedge ratio may have been desired at a lower funded status, but there may not have been enough assets to allocate to get there. As the exposure to LDI increases, we eventually have plenty of assets to hedge most or all of the liability interest rate exposure. The use of duration-extension strategies provides an opportunity to enhance the efficiency of the asset/liability relationship and allows for the targeting of higher hedge ratios at lower allocations to LDI.

This framework assumes that explicit leverage is not allowed in the construction of the hedging portfolio. Use of leverage changes this dynamic, enabling the achievement of higher hedge ratios than with physical bonds alone.

3. Determine the mix of credit and treasury

When a plan is underfunded and has a higher allocation to return-seeking assets, the LDI portfolio is more focused on Treasury exposure. This is for two reasons. First, if you have a lot of return-seeking assets, you do not need much credit spread exposure, which tends to behave like return-seeking assets when there are substantial changes in markets. Second, it is much easier to gain more meaningful duration exposure to offset liability risk through Treasury securities, particularly Separate Trading of Registered Interest and Principal of Securities (STRIPS).

As the allocation to return-seeking assets decreases, the portfolio must find other ways to cover the spread exposure present in pension liabilities. It is no surprise that this comes from higher allocations to credit in the fixed income portfolio. What might be surprising is that Treasuries continue to play a substantial role in the hedging portfolio, not just to continue achieving desired levels of interest rate hedging, but also recognizing that a little bit of equity goes a long way to covering the liability spread exposure.

4. Consider the inclusion of less liquid assets

Exhibit 2 allows us to summarize the fourth item in our model portfolio framework, the potential inclusion of less liquid assets.



...less liquid assets have attractive features for DB plans in many instances if they are prudently accessed. On a total plan basis, core private real estate, private markets and hedge funds may provide higher returns and reduce plan risk.

Restrictions on less liquid assets can limit a plan's ability to invest. Private markets are often subject to minimum investment thresholds, which means a plan must be large enough for investment to be feasible. Hedge funds come with their own limitations, depending on plan sponsor constraints and objectives. However, less liquid assets have attractive features for DB plans in many instances if they are prudently accessed. On a total plan basis, core private real estate, private markets and hedge funds may provide higher returns and reduce plan risk.

Finally, corporate DB plans are subject to varying liquidity requirements. Plans that are open, ongoing and well-supported by their plan sponsor are particularly well-suited to less liquid assets as they presumably have a long time horizon and a relatively small amount of assets to pay out each month in benefits to retirees. On the other hand, a plan that is mature must pick its opportunities, as it likely has large monthly outflows to pay participants and, if well-funded, is likely to be thinking about potential risk-transfer activities and/or hibernation.⁶

Exhibit 2: Potential inclusion of less liquid assets

| PLAN CHARACTERISTICS | % OF RETURN-SEEKING ASSETS | | | |
|--|----------------------------|-------------|--------------------------|-----------------|
| | LIQUID RETURN-SEEKING* | HEDGE FUNDS | CORE PRIVATE REAL ESTATE | PRIVATE MARKETS |
| Low liquidity needs <ul style="list-style-type: none"> Open/ongoing plans Long time horizon Low benefit payments | 55 – 90% | 0 – 10% | 5 – 15% | 5 – 20% |
| Moderate liquidity needs <ul style="list-style-type: none"> Recently closed/underfunded plans Underfunded non-hybrid frozen plans | 65 – 95% | 0 – 10% | 5 – 15% | 0 – 10% |
| High liquidity needs <ul style="list-style-type: none"> Fully funded mature closed plans Fully funded frozen plans Large upcoming risk transfer High benefit payments | 85 – 100% | 0 – 5% | 0 – 10% | 0% |

* Liquid return-seeking assets includes such things as public equities, liquid real assets, and liquid return-seeking fixed income.

Conclusion

It is a daunting task, but by building a framework that can apply to corporate DB plans broadly and by accepting that we should be talking in terms of ranges rather than absolutes, we have constructed a functional, sensible model portfolio framework.

Despite our efforts, there will likely be plans that have valid reasons to fall outside of the ranges we have specified, simply because of the unique nature of the plan, the strength of the backing sponsor, investor preferences or other unforeseen circumstances.

Developing a successful investment program is an exercise that requires thought and effort, and this model portfolio framework serves as a meaningful starting point and structure on which that program and effort can be based.

¹ Owens, J. (2019). "Return requirements for DB plan portfolios." *Russell Investments Research*. Available at: <https://russellinvestments.com/-/media/files/us/insights/institutions/defined-benefit/return-requirements-for-db-plan-portfolios.pdf>

² Nordquist, G. (2019). "LDI implementation: One size does not fit all". *Russell Investments Strategy Spotlight*. Available at: <https://russellinvestments.com/-/media/files/us/insights/institutions/defined-benefit/ldi-implementation.pdf>

³ Lato, MB. (2019). "Alternative investing impact on return-seeking portfolios" *Russell Investments Research*. Available at: <https://russellinvestments.com/-/media/files/us/insights/institutions/defined-benefit/alternative-investing-impact-on-return-seeking-db-portfolios.pdf>

⁴ Muetze, M. (2014). "Introducing TFBO: A tool to help you understand the long-term economics of your plan." *Russell Investments Viewpoint*. Available at:

<https://russellinvestments.com/-/media/files/us/insights/institutions/defined-benefit/introducing-tfbo.pdf>

⁵ We recognize as well that there may be extenuating circumstances particularly for underfunded plans, where the sponsor may want to hold a lower allocation to return-seeking assets than is indicated by the ranges here to limit the downside risk of the plan. This framework is not intended to exclude those scenarios from consideration.

⁶ Owens, J. (2016). "A guide to pension plan hibernation". *Russell Investments Viewpoint*. Available at: <https://russellinvestments.com/-/media/files/us/insights/institutions/defined-benefit/a-guide-to-pension-plan-hibernation.pdf>

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