Rocaton

INSIGHTS

Constructing a Glide Path for Defined Benefit Plans

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EXECUTIVE SUMMARY

- A glide path, in the context of a defined benefit pension plan, seeks to identify how a plan's asset allocation will evolve over time as the plan's funded status improves.
- Developing a glide path for a defined benefit plan is often an important tool for plan sponsors that can serve as a "road-map" to incrementally reduce expected funded status volatility.
- Glide paths provide a framework to establish how much risk and what types of risks will be present in the plan. In addition, they are designed to remove or mitigate behavioral risks.
- Reducing funded status risk over time by matching assets to liabilities is typically prudent; however, building an asset portfolio that closely tracks the changes in the liabilities can also lead to increased plan costs including higher expected contributions and lower expected funded status. In our view, the ultimate objective of any defined benefit plan is to meet future benefit obligations. As such, focusing entirely on closely tracking changes in the value of the liability may result in taking risks in the asset portfolio that are sub-optimal over the long-term. Recognizing this has important implications for glide path construction.
- When building a glide path, plan sponsors should also consider potential implementation issues and the frequency with which the glide path will be monitored.

Glide Path Principles

Over the past decade, many plan sponsors have adopted glide paths. For those plan sponsors that have not yet embraced the concept of a glide path, but are contemplating implementing one, and for plans with an existing glide path, we feel that the following principles may serve as a helpful guide.

1. Glide paths should be customized. There is not a one-size fits all solution.

Defined benefit plans can differ meaningfully with regards to plan benefit design, plan demographics, the financial strength of the plan sponsor, etc. All of these factors inform how a glide path is constructed and suggest that glide paths should be customized. Similarly, the status of the plan (open/closed/frozen) will likely impact glide path design. All else equal, an open plan with an identical funding ratio as a frozen plan might have a higher weight to risk-assets given the desire to generate return to meet ongoing service cost. Glide paths can be relatively simple in structure or more complex. For example, sponsors need to determine how frequently to adjust asset allocation. As a general rule, we find that 5% increments in funded status are reasonable thresholds for many plans. In some cases, plans which are well funded may opt to utilize 2.5% funded status increments to modify the plan's asset allocation.

In addition to funded status triggers, some glide paths also may make use of interest rate or spread triggers to determine duration positioning or the split between government and corporate bonds. More specifically, low rates and/or the shape of the yield curve might be a reason to maintain a shorter duration bond portfolio and/or a lower interest rate hedge ratio. Similarly, tight corporate bond spreads present investors with an asymmetrical return profile. In this instance, plan sponsors that have spread triggers as an input into their glide paths may determine that the marginal dollar should be allocated to Government bonds based on a tactical view that corporate spreads are tight.

2. Glide paths are typically, but not always, "one-way"

From our perspective, plan sponsors generally should not re-risk if funded status falls. However, there may be instances where it may be appropriate to revisit a plan's glide path. For example, a change to the plan (e.g. transition from open to closed/frozen), or a plan event (e.g. lump sum payment or annuity transactions) may necessitate a review of a plan's glide path. Similarly, plan sponsors should understand how market conditions have evolved when reviewing the plan's glide path. While infrequent, there may be certain market environments in which the "one-way" glide path is not optimal. Importantly, we do not view rebalancing as "re-risking."

3. Implementation of a glide path should generally be systematic (or rules-based)

A well-constructed glide path that is effectively implemented should help to alleviate behavioral risks and/or avoid inertia. In some instances, we have found that plan sponsors can be reluctant to make changes in certain market environments. By design, glide paths are intended to help plan sponsors develop a plan in advance of reaching certain funded status levels. Plan sponsors often state a desire to reduce funded status risk as the plan becomes better funded. However, governance structures can serve as an impediment to plan sponsors moving quickly to take advantage of funded status gains. Adopting a glide path puts plan sponsors in a position to implement asset allocation changes and capitalize on improving funded status. Though glide paths are an effective way to systematically shift asset allocation, plan sponsors should not completely ignore the current market environment when making portfolio changes. Lastly, because plan liabilities and plan sponsor financials can change, revisiting the glide path on a periodic basis is prudent.

4. Diversification is an important tenet for the liability hedging and growth portfolios

While partitioning a portfolio into "growth assets" (or "return seeking assets") and "liability hedging assets" can be useful, this framework should not prevent a plan sponsor from considering a broad range of strategies that can hedge a plan's liability and/or generate attractive total returns. For example, plan sponsors may want to consider a range of long duration strategies beyond traditional corporate and government bonds as well as risk assets beyond public equities. Some of these strategies may not fit "neatly" into the liability hedging portfolio or the growth portfolio, and therefore having more flexibility with classification of asset classes is prudent. As an example, there are strategies which offer the potential to generate mid-single digit returns with limited downside. Further, plan sponsors might also consider derivatives when appropriate. Derivatives can potentially offer liability hedging properties (e.g., interest rate overlay) and/or return enhancement (e.g., equity market overlay) and should be part of a plan's toolkit.

Our views on expanding the opportunity set where possible, is largely predicated on the fact that some level of funded status volatility will always be present given equity market volatility (assuming the plan has an allocation to equities), changes to actuarial assumptions, lump sum payouts for those plans that offer them, the "noise" that is embedded in discount curves, etc. The purpose of the plan's assets is to maintain solvency and to provide benefits to participants as promised. Therefore, focusing exclusively on tracking error minimization may result in the plan taking risks in the asset portfolio that are sub-optimal.

Glide Path Implementation

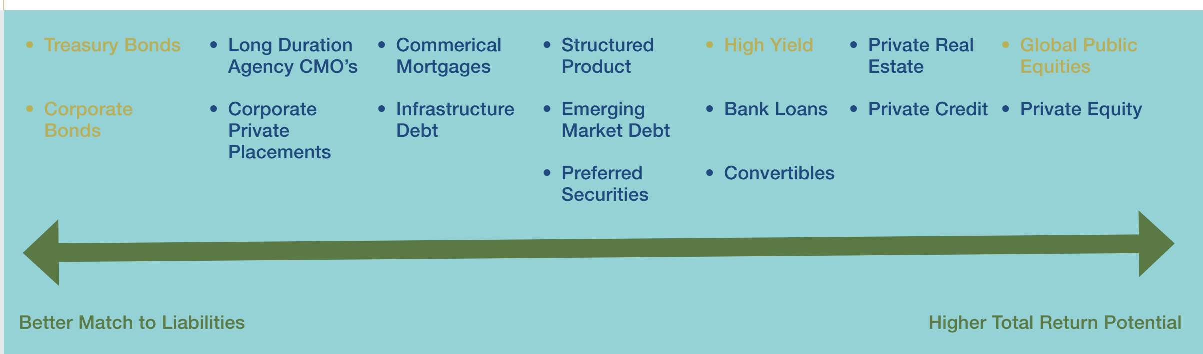
We believe plan sponsors should consider a wide range of strategies which can generate return and/or hedge liabilities. Although not an exhaustive list, Figure 1 below provides a range of strategies that could be considered as part of a glide path. We did not explicitly categorize assets into “growth assets” or “liability hedging assets.” Rather, Figure 1 provides a sense as to where certain asset classes fall along the spectrum of return generation and liability hedging. While we suggest that plan sponsors avoid rigidly categorizing assets into specific categories, for simplicity, we may refer to asset classes as “growth/return seeking” or “liability hedging” throughout the balance of this section.

Figure 1:

Illustrative Range of Asset Classes for Consideration

Asset Classes Commonly Used in Glide Paths

Asset Classes Less Frequently Used in Glide Paths



Assets with Higher Return Potential

As a general rule of thumb, growth or return seeking assets should have the objective of providing a return in excess of the yield on the liabilities.[1] As previously mentioned, plan sponsors should take advantage of a broad opportunity set when allocating to growth assets. As shown in Figure 1, there is a range of asset classes for plans to consider, some of which do not fit neatly into specific categories. The fact that certain asset classes do not neatly fit into a growth or a liability hedging portfolio should not preclude those asset classes from being included in a portfolio.

Plan sponsors should also identify their tolerance for illiquidity which can be informed by their ultimate objectives for the plan. All else equal, plans looking to annuitize a significant portion of their plan in the near-term (3-5 years) will likely make less use of illiquid strategies which have long-term lock-ups. For those plans which remain open or have a longer time horizon (5-10+ years), illiquid alternatives can be targeted to enhance returns and/or diversify away from equity market risk.[2] Importantly there are investment opportunities than span the illiquidity spectrum. For example, there are lock-up funds with life spans of 3 – 7 years which can be appropriate for many plans, even those wishing to annuitize in the next 10 years. There may also be higher returning, diversifying opportunities with more favorable liquidity terms.

We also believe plans should take advantage of dislocations/opportunistic investment ideas as a way to generate incremental return. Importantly, we are not suggesting investors tactically allocate around their glide path frequently. Rather, we are recommending that plan sponsors should be prepared to deploy capital to attractive

[1] The bond universe used to construct most liability discount curves has credit quality limits (AA for accounting purposes). Therefore, the yield on a AA curve should be viewed as the yield on the liabilities.

[2] The size and nature of benefit payments are other factors which should be considered when determining the appropriate allocation to illiquid investments.

investment opportunities during periods of market volatility. If allowing for opportunistic investments is appealing, plan sponsors should ensure that their governance structure is designed to facilitate committing to these types of investments, by outlining a decision-making framework in advance. One way to incorporate opportunistic investments in a glide path is to set a range (e.g. 0-15% or 0 – 10%) rather than a fixed target at each point along the glide path.

Finally, it is typically advisable that plans maintain some exposure to growth assets even when the plan is over 100% funded. This is particularly true for plans which are not frozen and are, therefore, accruing benefits. Importantly, this does not mean that the final growth allocation needs to be invested entirely in public equities as the public equity allocation can still contribute meaningfully to the funded status volatility even for plans that have a significant majority of their portfolio in liability hedging assets. In our view, diversification is an important tenet across all stages of the glide path and therefore "hybrid fixed income" (such as high yield, bank loans, preferred securities, emerging market debt, convertibles, and other similar assets) should have a strategic role even as a plan nears the end of its glide path. However, we recognize that achieving this level of diversification for some smaller plans may be challenging.

Figure 2:

Illustrative Glide Path & Expected Funded Status Risk

Funded Status	80%	85%	90%	95%	100%	105%	110%	115%
Risk Assets	60.0%	52.5%	45.0%	37.5%	30.0%	22.5%	15.0%	10.0%
Public Equity	36.0%	31.5%	27.0%	22.5%	18.0%	13.5%	9.0%	6.0%
Hybrid Fixed Income	18.0%	15.8%	13.5%	11.3%	9.0%	6.8%	6.0%	4.0%
Opportunistic Investments	0-15%	0-15%	0-15%	0-10%	0-10%	0-10%	0-5%	0-5%
Private Capital	6.0%	5.3%	4.5%	3.8%	3.0%	2.3%	0.0%	0.0%
Liability Hedging Assets	40.0%	47.5%	55.0%	62.5%	70.0%	77.5%	85.0%	90.0%
Government Bonds (Long and Market Duration)	25.0%	25.0%	22.5%	22.5%	22.5%	22.5%	20.0%	20.0%
Traditional Credit (Long and Market Duration)	12.5%	20.0%	27.5%	35.0%	40.0%	45.0%	52.5%	55.0%
Liability Hedging Alternatives	2.5%	2.5%	5.0%	5.0%	7.5%	10.0%	12.5%	15.0%
Expected Funded Status Volatility	8.6%	8.0%	7.4%	6.6%	5.6%	4.6%	3.3%	2.8%
Public Equity Contribution to F.S. Volatility*	45%	48%	52%	55%	60%	64%	60%	45%

* Estimated based on Rocaton's forecasts.

Assets that Better Match Liabilities

In our view, high quality corporate and government bonds should be the cornerstone of a liability hedging portfolio. All else equal, government bonds will likely be a larger portion of the liability hedging portfolio when a plan has significant exposure to risk-assets. As the liability hedging portfolio allocation grows, corporate bonds will typically become a larger allocation.

While it is beyond the scope of this paper, Rocaton feels that, in most instances, it is optimal to obtain government exposure passively and credit exposure via active managers. Further, given that the allocation to corporate bonds will likely grow as the plan moves down its glide path, plan sponsors should likely diversify by manager and style to avoid overconcentration risk with an individual investment manager. We would suggest emphasizing active credit management at all points along the glide path as skilled credit managers have the potential to add value over the index.

Plan sponsors may also want to consider exploring certain asset classes ("liability hedging alternatives") that have a reasonable correlation to the liability, provide a higher or comparable return to long corporate bonds and offer diversification benefits to corporate credit risk.[3] Defined benefit plans will likely consider liability hedging alternatives as their public corporate bond allocation grows and they seek to diversify. Examples of liability hedging alternatives are included in Figure 3. While the liability is not exposed to credit risk, the asset portfolio is impacted by defaults and credit migration.[4] We also find several challenges with allocating exclusively to long corporate bonds. Notably, the long corporate benchmark is concentrated, with the top 10 issuers constituting almost 20% of market value of the index. Further, the diversification benefits of a long corporate/credit program with multiple managers is limited to some extent and lending to companies for 30 years can be a risky proposition, which is potentially exacerbated by the pace of technological change. Lastly, long corporate bonds expose investors to migration risk, which can exacerbate the mismatch between assets and liabilities. This cost can range from 50-75 bps per annum over a full market cycle. All of these facts support including liability hedging alternatives in the opportunity set.

Figure 3:

Overview of Liability Hedging Alternatives

		Liability Hedging Alternatives				
Characteristics	Context for Assessment	Long Corporates	Agency CMOs	Commercial Mortgage Lending	Corporate Private Placements*	Infrastructure Lending
Correlation to Liability Discount Curve	Relative to Entire Opportunity Set	↑↑	↑	↑	↑↑	↑
Default/Migration Risk	Relative to Public Corporates	N/A	↑↑	—	—	—
Spread Enhancement	Relative to Public Corporates	N/A	↓	↑	↑	↑↑
Liquidity	Relative to Public Corporates	N/A	—	↓	↓	↓↓
Size of Market	Relative to Entire Opportunity Set	↑↑	↑	↑↑	—	↓

* On a duration adjusted basis, corporate private placements have a very strong correlation to the liability discount curve.
This analysis is illustrative.

Beyond the use of physical securities, plan sponsors may want to consider derivatives or overlay/completion programs to augment cash duration exposure where appropriate. From our perspective, interest rate derivatives can serve as a capital efficient tool, particularly in the early to mid-stages of a glide path, to achieve a targeted dollar duration and to allow plans to maintain their allocation to growth assets (and therefore not reduce expected return). Further, derivatives can often be used to improve the curve match between assets and liabilities further down the glide path. While completion management is not easily defined given that mandates vary widely in their scope and objectives, we generally believe it is most valuable to plan sponsors requiring assistance effectively moving along their glide path, or for those plans with fairly limited liability-hedging assets that intend to target an interest rate hedge ratio in a capital efficient manner.[5] Depending on the scope of mandate, completion managers can play a role at various points along the glide path.

[3] For a more detailed review of "liability hedging alternatives", see Rocaton Insights – Expanding the LDI Tool Kit: Alternatives to Long Corporate Bonds (February 2015).

[4] Importantly, we find that liability values often increase after a default or downgrade. While this may be counter-intuitive, this is due to the fact that bonds that default or are downgraded typically carry the highest yields in the discount curve. As such, when they are removed from the calculation of the discount curve, the yield typically falls pushing up liability values.

[5] See Rocaton Insights – Examining Completion Management for Pension Plans (June 2016)

Glide Path Monitoring

Clearly for a glide path to be effective, a plan sponsor, consultant and/or completion manager will want to frequently monitor the funded status and any other triggers (e.g. corporate spreads, interest rates) that the plan sponsor has established that would prompt an asset allocation change. The liability should generally be measured on a mark-to-market basis (i.e., accounting Projected Benefit Obligation, annuity buyout) to capture market sensitivities. From our perspective, most plans should be monitoring funded status, at a minimum, on a quarterly basis, regardless of plan's target asset allocation. For those plans that intend to respond quickly to a funded status trigger, more frequent monitoring is likely necessary (e.g. monthly or in some cases daily). As such, many industry participants (actuaries, investment managers and consultants) have developed the necessary systems and tools to monitor funded status on a more frequent basis for plan sponsors that desire more regular updates. Given that markets are dynamic and the characteristics of a plan may change, it is typically good practice to review the glide path every 1-3 years. In the event that a material plan event occurs (e.g., lump sum offering or annuity buyout) it is advisable that the glide path is revisited.

Conclusion

We believe that glide paths are an effective pension risk management tool that should be considered by most plan sponsors. Perhaps most importantly, glide paths should be customized to each plan's specific circumstances. An in-depth understanding of a plan's characteristics and demographics as well as the financial health of the corporation are just some of the critical inputs that can be used to create a custom glide path. While separating a portfolio into "growth assets" (or "return seeking assets") and "liability hedging assets" can be a useful framework, we believe plans should consider a broad opportunity set of asset classes when implementing a glide path. As we outlined, the ultimate objective of a defined benefit plan is to meet the plan's liabilities and a glide path can play an important role in helping plan sponsors meet this objective.

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