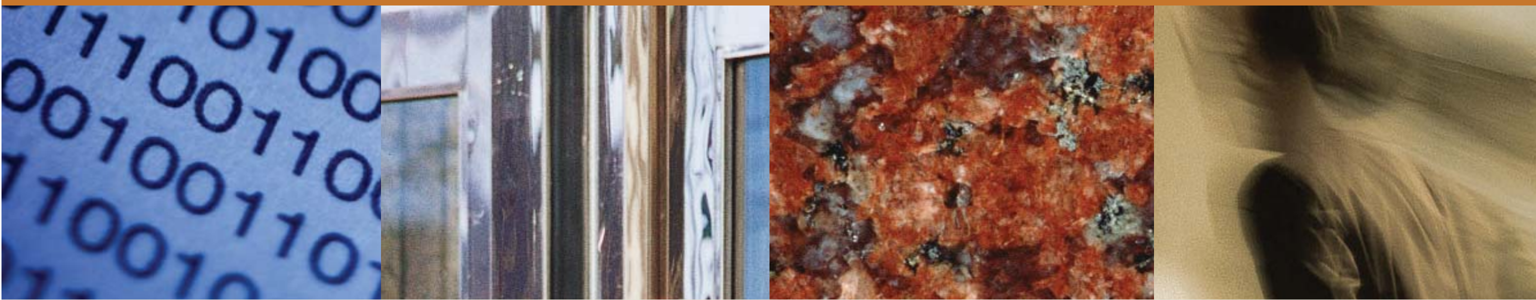
The *Institutional Investor* Guide to

Fixed Income Investing



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Liability-Driven Investing: From Thesis to Action

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Addressing the Liability Challenge

With the reforms enacted by the Pension Protection Act of 2006, the "liability debate" is shifting from investment thesis to practical application. The interest rate environment of the past several years has made plan sponsors acutely aware that a significant risk to the solvency of their plans is the duration mismatch between their assets and liabilities. Indeed, for many plans, nearly half of the surplus risk[1] can be derived from this mismatch in interest rate exposure. Both the new pension legislation and proposed changes in the accounting structure provide incentives for plan sponsors to pay closer attention to this risk when designing investment policy.

Fortunately, the "liability challenge" comes at a time when sponsors have access to a number of new financial instruments that can make the transition relatively straightforward. The broad availability of interest rate derivative contracts, combined with a wider array of investment opportunities, gives plan sponsors an expansive tool kit for managing assets relative to liability exposures. The practical issue facing most plan sponsors is not the arithmetic of structuring an optimal investment policy, but rather, managing the transition from their current policy to a liability-driven policy.

In this article, we explore three concrete steps that plan sponsors can take as they move down the path towards greater awareness of their pension liabilities.

Framing Plan Sponsor Alternatives

Any liability-driven approach to investment policy requires plan sponsors to pivot from an asset-only to an asset-liability focus. Once plan sponsors make that shift and treat the risk and return characteristics of the liability stream as the *true benchmark*, the measurement of overall risk and return must change as well. The impact of changes in these measurements becomes more pronounced as the plan sponsor moves to a mark-to-market environment (a movement that is promoted by changes in pension regulations and accounting, both approved and pending).

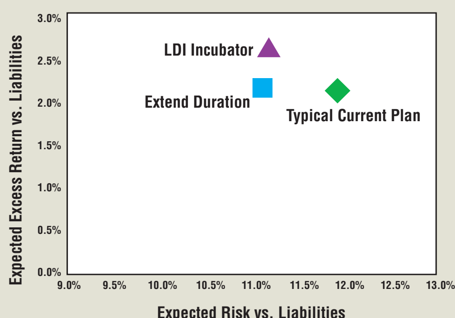
Most investment performance is reported as total returns. From a liability-driven perspective, though, what matters more is the asset's investment performance *relative* to changes in liability values. A simple first step that most plan sponsors can follow is to report investment performance in total return terms and relative to liability returns. As a proxy for liability returns, plan sponsors can use a long-duration bond index, with a duration comparable to the liability stream.[2] This step provides observable evidence of any changes in the asset-liability surplus. A natural extension of this initial step is to then do a performance attribution on the surplus, thereby highlighting the consequences of the duration mismatch between the existing investment policy and the liability stream.

Of course, once plan sponsors understand the implications of the interest rate mismatch, they will want to begin changing their investment policy. Our next two steps provide concrete directions to help plan sponsors make the change. The goal of each step is to begin managing the duration mismatch, with limited disruption to the overall plan. Neither step provides a final solution, but rather, a series of incremental potential improvements.

Changing the Fixed Income Benchmark

For plan sponsors seeking to move the plan's assets *closer* to its liabilities, extending duration within the fixed income

Impact of Extending Duration and LDI Incubator



	Typical Current Plan	Extend Duration	LDI Incubator
Active Equity	65%	65%	65%
Active Fixed Income	30%	30% US Long Duration	20% US Long Duration and 15% Long Bond Overlay
Cash	5%	5%	-5%**
Total Return Strategy	0%	0%	5%
Plan Duration*	1 year	3.3 years	3.85 years
Annualized Expected Excess Return vs. Liabilities	2.14%	2.17%	2.57%
Annualized Expected Risk vs. Liabilities	11.91%	11.12%	11.16%

*Assumes non fixed income assets hold zero duration. **-5% cash in LDI Incubator is due to implicit borrowing for Long Bond Overlay. For illustrative purposes only.
Source: Goldman Sachs Asset Management. Expected returns are estimates of hypothetical average returns of economic asset classes derived from statistical models. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see additional disclosures.

allocation makes sense. In this case, a plan simply shifts its existing core-plus exposures to a "core-plus portfolio with long duration," with investment objectives, constraints and derivatives usage left largely intact. One benefit of this option is that it fits neatly into the traditional framework with little to no disruption to the overall plan – the plan simply switches to a long-duration benchmark, and simultaneously allows for an expanded use of fixed income derivatives to manage the increased duration risk.

An obvious benefit to duration extension is easily embraced: its immediate impact as a risk-management trade. A typical plan that doubles its bond duration from 5 to 10 years would see its overall plan duration also double from 1.5 to 3 years.[3] While three years of plan duration is still a lot less than that of a typical liability, it is certainly a move in the right direction.

A less appreciated benefit of extending duration is a potential *increase* in expected returns *relative to liabilities.* Usually, long-duration assets carry a premium, called the *term premium*, which compensates for taking the risk of longer maturity assets. The duration mismatch between assets and liabilities results in a negative exposure, or short position, to that term premium, which acts as a drag on the expected return on assets relative to liabilities. Closing a plan's asset-liability duration gap (even by a couple years) reduces a plan's surplus risk and moderates the drag from being short the term premium.

An attractive feature of duration extension is that plan sponsors can choose from a wide array of benchmarks, ranging from traditional indices such as the Lehman Long Gov/Corp Index (with an 11-year duration) to customized benchmarks that could combine bonds, long-dated swaps and complementary exposures such as inflation-linked securities. Using customized benchmarks, plans can further tighten the duration match between asset and liability.

To be sure, duration extension strategies applied to less than half of plan assets cannot be viewed as a final solution. Rather, it presents a viable means to begin moving the dial, without ceding the asset composition or opportunities of a traditional portfolio.

Incubating a Liability-Driven Investing (LDI) Strategy

A full liability-driven investment strategy requires reframing investment policy design to explicitly recognize the importance of both hedging the interest rate exposures inherent to liabilities and generating returns in excess of those liability returns. While most plan sponsors accept interest rate hedging as a means to potentially reduce surplus risk, they are understandably reluctant to endorse a full-scale restructuring. We would argue that this is not an all-or-nothing decision. For this reason, we believe many plans would be well served to incubate an LDI solution with a "slice" of their portfolio and implement it as if it were being applied to the whole plan.

In this case, a plan would take a percentage of its current assets (10 percent, say), and restructure that slice into the

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LDI construct – with one portfolio that hedges the liability and one that potentially generates a return over that liability stream. In doing so, plan sponsors can introduce their stakeholders to the "new world" of liability-driven investing, while investigating ways to enhance the implementation in the future. This "slice" demonstrates all the characteristics of a full hedge (e.g., asset volatility and surplus volatility characteristics) and takes full advantage of the instruments and techniques that are available today.

Depending on the plan's size, sponsors can look to a well established suite of return-generating strategies ranging from traditional fixed income and equity portfolios to an array of hedge fund and exotic beta exposures. Vehicles and structures can be equally diverse, ranging from commingled funds to separate accounts.

Conclusion

We believe that the US defined benefit pension system is undoubtedly moving closer to a framework where pension assets and liabilities will be considered relative to their market values. While this mark-to-market treatment has not yet fully unfolded in the US, it is easy to envisage a wide array of regulatory, market or corporate changes that will push US plans further in this direction. In this article, we have outlined a series of practical steps that plan sponsors can use to help prepare for these changes. ■

1. The surplus risk is simply the uncertainty or volatility of the difference between the asset and liability valuations, divided by the asset valuation itself.
2. If no directly comparable bond index is available, then plan sponsors can simply adjust to account for the difference in duration between the next best index and the liability stream.
3. Duration of a typical plan: (30% fixed income x 5 years) + (60% equity x 0 years) = 1.5 years. Duration of a plan that has extended duration: (30% fixed income x 10 years) + (60% equity x 0 years) = 3.0 years

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