

# De-risking: A Path to LDI for Pension Plans

A defined benefit issues brief for finance professionals

## RETIREMENT & BENEFIT PLAN SERVICES

### Executive Summary

- Liability-driven investing (LDI) has been shown to be a more methodical way for pension plans to stabilize funding status throughout market cycles compared to traditional pension investing.
- But LDI can be problematic for underfunded plans. With the average plan in underfunded status since the downturn of 2008–09, many plan sponsors fear they have lost the opportunity to reap the benefits of LDI.
- The de-risking strategy developed by Bank of America Merrill Lynch can allow underfunded plans to dynamically adopt LDI while striving to improve their funded status.

Although it has existed for decades, LDI has gained prominence in the last dozen years as an effective strategy for investing pension plan funds. Its ability to help plans remain fully funded throughout market cycles makes it uniquely appropriate, in ways that asset-based or return-based investing does not. (See sidebar.)

But adopting the LDI approach has been complicated by the recent economic downturn, which has pushed many plans into deficits. The great virtue of LDI — essentially, it locks in a plan's fully funded status — can work the other way for plans that are not fully funded, keeping them in an underfunded status.

For pension plan sponsors who are in the midst of moving to an LDI approach or are considering doing so, the question becomes, "How?" Bank of America Merrill Lynch, a practitioner of LDI strategies for nearly two decades, suggests a dynamic approach. Called "de-risking," our methodology can help virtually any pension plan transition to LDI, including those currently in deficit.

### LDI versus traditional pension investing

LDI is a dramatic departure from the traditional "asset-only" approach to pension investing.

Traditionally, the overriding goal of most plan sponsors has been to maximize asset growth for a given level of investment risk. Investment decisions have been based on the expected returns and risk characteristics of specific asset classes. But little if any consideration has been given to the correlation between the asset classes and the plan's liabilities, which has led to potentially large swings in funded status, required contributions, and balance sheet liabilities.

LDI strategies seek to align the value of a plan's assets with its liabilities as both are affected by market performance and other factors. The goal is more stability in funded status, required contributions, and balance sheet impact.

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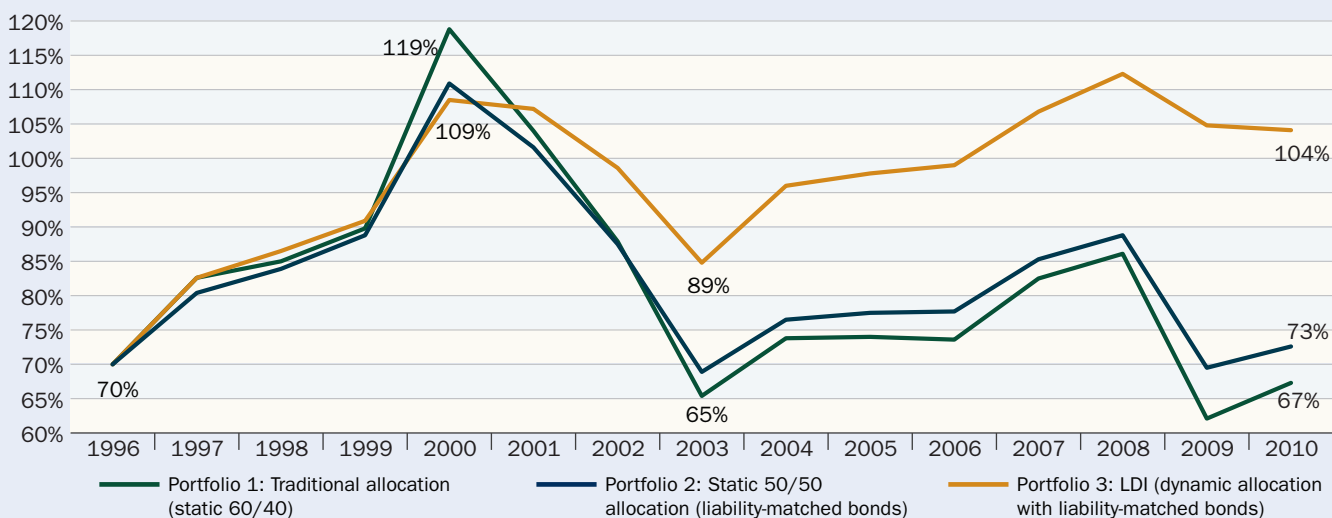
**Liability-Driven Investing (LDI) in brief**

Traditionally, pension plan investing has focused on maximizing returns. LDI reorients this traditional approach, and instead aims at reducing the risk to funded status through investment strategy and asset allocation. Its rationale: if the goal of a pension plan is to meet liabilities, then the investing goal should be focused on that larger plan goal.

There are no hard-and-fast rules on what qualifies as LDI; in some respects, it is still evolving. Furthermore, LDI objectives may differ from sponsor to sponsor, depending on ownership and capital structure. But all LDI strategies seek to quantify and more closely match plan investment returns to changes in benefit obligations — that is, liabilities. In doing so, all LDI strategies seek to limit the swings in funded status, changes in contribution requirements, and impact on the balance sheet.

**Exhibit 1. A better path to funded status**

LDI versus more traditional allocations, 1996 to 2010



The chart above shows a case study for a hypothetical pension plan that was frozen at the beginning of the time period (1996). We show the funded status movement based on annual level contributions and three asset allocations under the following assumptions: (1) Static 60/40: 60% S&P index, 40% Barclays Capital Aggregate Bond index, rebalanced annually; (2) Static 50/50 with liability-matched bonds: 50% S&P index, 50% Barclays Capital Long Government/Credit index, rebalanced annually; (3) Dynamic Allocation with liability-matched bonds: Annual asset allocation dependent on funded status, based on targets shown in Exhibit 2 on page 4 with equities based on S&P index and fixed income based on Barclays Capital Aggregate Index (at 75% funded status level or below) and Barclays Capital Long Government/Credit Index (once funded status is at least 75%).

	Portfolio 1: Traditional allocation	Portfolio 2: One-time shift to long bonds	Portfolio 3: Phased LDI
<b>Investment Strategy</b>	<ul style="list-style-type: none"> <li>Maximized return for a moderate risk profile (60/40 equities/fixed income)</li> </ul>	<ul style="list-style-type: none"> <li>Increased fixed income allocation (from 40% to 50%)</li> <li>Bond matched with liability cash flow</li> </ul>	<ul style="list-style-type: none"> <li>Dynamically changed asset allocation based on level of funded status</li> <li>Incrementally increased to LDI with improved funded status</li> </ul>
<b>Result</b>	<ul style="list-style-type: none"> <li>+/- 50% swings in funded status during the period</li> <li>Funded status not materially improved</li> </ul>	<ul style="list-style-type: none"> <li>Volatility of funded status reduced to 40%</li> <li>No significant improvement in funded status</li> </ul>	<ul style="list-style-type: none"> <li>Achieved full funding status</li> <li>Significantly reduced volatility of funded status</li> </ul>

**LDI in action**

The ultimate test of any investment strategy is how well it achieves the sponsor’s goals. To gauge the effectiveness of LDI, Exhibit 1 on the preceding page compares three hypothetical plans over a full market cycle, each plan with identical demographics but different investment strategies:

- A **traditional** investment strategy
- A one-time, moderate **shift to long bonds**
- A phased implementation of **LDI** based on funded status

At the end of the period:

- Portfolio 1 — the traditional portfolio — would not have seen improvements in the funded status. The portfolio’s volatility would have adversely affected shareholder earnings as well and even may have affected debt covenants during down markets.
- Portfolio 2 — the one-time shift to long bonds — resulted in slightly less volatility than the 60/40 portfolio. However, there was not a significant difference between the two portfolios’ ending funded status and the plan remained underfunded.
- Portfolio 3 — the phased LDI approach — not only would have helped the plan achieve fully funded status, but also would have significantly helped to reduce volatility.

With the third portfolio, the plan’s asset allocation was shifted in favor of fixed income at the right trigger points to match the plan’s liabilities. This approach did a better job of maintaining the plan’s funding status within thresholds defined by a company’s cost and risk profile.

Allowing for a more dynamic approach to asset allocation lets plans reduce risk step by step, with the ultimate goal of completely de-risking the portfolio.

**LDI in the aftermath of the financial crisis of 2008**

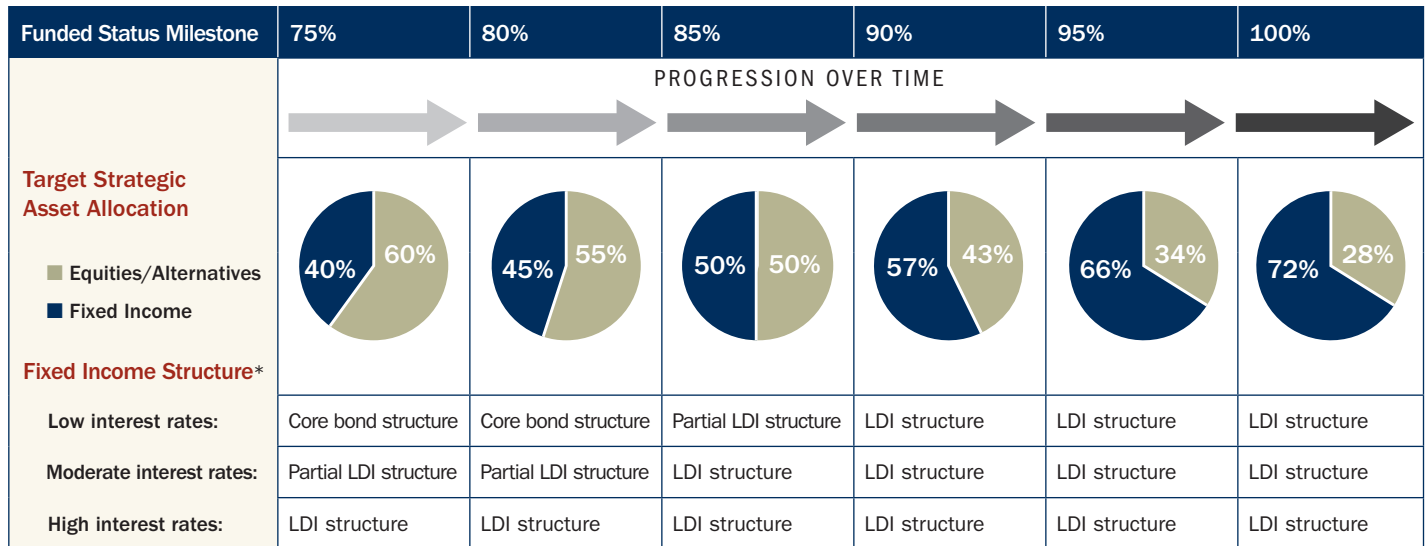
As demonstrated in Exhibit 1, for fully-funded plans adopting this strategy, LDI is a potentially superior approach to meeting pension plan goals. But what about the many pension plans that have not yet adopted LDI and, after the market disruption of 2008–09, are now less than fully funded?

Many plan sponsors either did not implement robust LDI programs before 2008 or implemented modest changes such as lengthening bond duration at a single point in time. And yet, as of year-end 2010, the average corporate pension plan was only 84% funded.<sup>1</sup> Those underfunded plans that seek to adopt LDI programs may face several risks, including:

- **Locking in a deficit.** A complete transition to an LDI strategy when a plan is underfunded may lock in the deficit, forcing the sponsor to make up the shortfall through additional cash contributions. For companies with capital constraints, this may be far from optimal.
- **Opportunity cost.** Prevailing interest rates have a significant effect on LDI results. All things being equal, for an underfunded pension plan rising rates will help funded status; if interest rates rise and equity markets recover, liabilities will shrink and funded status will improve. An underfunded pension plan that uses a fully hedged LDI portfolio may miss this potential benefit of equity market recovery, resulting in opportunity cost and potential regret risk.
- **Complexities with matching interest rates.** An LDI program typically seeks to hedge the interest rate of a pension plan, which is based on the yield curve for high quality corporate bonds. The yield curve can be broken down into a U.S. Treasury curve plus a premium for credit risk. First, the interest rate is difficult to replicate since the specific bonds used in the yield curve may change frequently as rating agencies upgrade or downgrade corporate bonds. Second, changes in credit spreads can cause problems if hedging is done through instruments other than corporate bonds. LDI programs need to therefore address both interest rate sensitivity and credit spread risk when determining the specific investments to be used (long duration bonds, interest rate swaps, futures, etc.).

**Exhibit 2. De-risking a pension plan over time**

As each funding milestone is achieved over time, the plan is increasingly de-risked by shifting its asset allocation gradually from equity to fixed income, while also monitoring the fixed income structure based on current interest rates.



\*The fixed income structure will be based off a Core Bond, Partial LDI, or LDI strategy, depending on the current interest rates.

**De-risking as a methodical path to LDI**

Very simply, a de-risking plan prepares for periods when a plan’s assets and liabilities, prevailing rates and other factors align to create an opportunity to help immunize part of the portfolio with fixed-income assets.

Exhibit 2 illustrates the de-risking “roadmap” for a sample frozen plan whose sponsor intends to contribute the minimum required contributions, de-risk the plan over time and ultimately terminate the pension plan.

Note two things about this roadmap: it provides for funded status thresholds which, when reached, will trigger strategic asset allocation changes to reduce program risk and help lock in improvements in funded status; and it considers the plan’s funded status and the interest rate environment as it implements specific LDI techniques. Although market shifts are unpredictable, this strategy can prepare for when they do happen.

A dynamic LDI strategy should be structured to reflect the unique needs and characteristics of the plan sponsor. These include risk tolerance, initial funded status, plan demographics, and plan size relative to the sponsor’s financial capacity. These factors must then be considered in light of experienced views on credit spreads and interest rates to determine the proper structure and the timing of an effective LDI program.

De-risking can be fairly easy to map out since, with the exception of interest rates, the factors that go into liabilities for a frozen plan are fairly predictable. Successfully implementing de-risking, on the other hand, is far from easy, as it presents a logistical challenge, relying heavily on mechanics.

## Implementing LDI: A fiduciary approach

Above all, de-risking requires the ability to identify trigger points and to act quickly on them.

The approach at Bank of America Merrill Lynch aims to accomplish both — through the investment policy statement, which provides the discretion to make changes, and through the firm’s advanced reporting system, which detects potential trigger points.

The de-risking process begins with projections of actual plan cash flows in the context of a full range of asset performance and interest rate scenarios, to show clients how funded status could move. The goal is for clients to determine what would be acceptable outcomes for their plans. Once this is achieved, an optimal asset allocation can be determined and hedges for interest rate sensitivity can be structured.

To give plans and their managers the leeway to act quickly, the Bank of America Merrill Lynch team maps the de-risking path in advance and advises the plan on making this part of its investment policy statement. This map spells out trigger points and expresses allocations not just

in terms of broad asset classes, but also of subclasses (for example, equity capitalization and subclass alternatives).

Trigger points occur quickly and are often short-lived. For the average plan, a 1% change in the interest rate has a corresponding 15% - 20% change in liability in the opposite direction. And yet, changes of this magnitude can happen in a matter of weeks. Therefore, it is no longer reasonable to wait for a quarterly review to decide to make changes — it must be done in real time.

The firm’s reporting system measures clients’ assets and liabilities based on prevailing interest and credit rates, providing the team with the insight needed to know when to make moves.

As the plan’s funding status improves, the team continues to phase in an LDI approach. Once the plan is fully funded, LDI can be more fully implemented, with the plan sponsor realizing the benefits.

A de-risking strategy can help plan sponsors see how LDI can play out for them in the future, getting them back on track in terms of funding status, and ultimately helping them realize the LDI opportunity, once their plan is better funded.

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<sup>1</sup> FactSet, BofAML US Equity Strategy of S&P 500 pension plans' 10-k filings, December 31, 2010.

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