Liability Driven Investment Solutions

What is LDI?

Liability Driven Investing (LDI) is an investment framework that is based on the premise that, for portfolios with defined obligations, failing to meet those liabilities is the critical risk to be managed. LDI portfolios are built by considering the characteristics and risks of a stream of liability cash flows.

In an LDI framework, investment decisions are made in the context of projected liabilities, and the goal is to manage the risk relative to the plan’s obligations rather than meeting a target rate of return. Return is measured primarily in the context of liabilities rather than relative to a particular published market index or peer comparison.

The objective of implementing an LDI strategy is to manage the variability of the funded status. Portfolio construction and the hedging strategy are dependent on the characteristics of the liabilities, the funded status, the asset classes available for consideration, and the risk appetite of the sponsoring entity. As such, each LDI portfolio is unique, and the solution can look quite different from the traditional 60/40 asset mix.

Why Consider LDI?

Investors seeking to hedge the fundamental risk characteristics of their liabilities should consider using LDI as a framework in developing an investment strategy. Potential benefits of LDI include:

- **Focus on funding liability.** By adopting an LDI program, the plan sponsor is taking an investment approach that closely aligns with their fiduciary duty, ensuring sufficient assets exist to fund benefits as they come due.

- **Removal of unintended risk.** An LDI strategy seeks to remove a significant proportion of risk associated with asset-liability mismatch related to inflation and interest rates.

- **Improvement in capital efficiency.** Through the use of overlay strategies, interest rate coverage can be increased without changing the existing fund structure or reallocating capital from return-seeking assets.

KEY FACTS:  
- Experience: Management of Liability Driven Investment solutions for Canadian clients since 2000  
- Currency Options: Canadian, U.S. dollars, and foreign currencies  
- Objective: Improved matching of assets against obligations and better risk-adjusted returns  
- Benchmark: Liability proxy
Common among the majority of LDI solutions are two main elements: the liability-hedging component (matching portfolio), and the return-seeking component. Investment decisions should be made by considering the trade-off between the benefits and risks associated with deviating from the minimum risk portfolio.

**The minimum risk portfolio**

A pension plan’s projected liabilities have attributes that are very similar to bonds such as duration, yield, and convexity. Because of this similarity, bonds, in particular longer duration bonds, can provide an excellent hedge to the liabilities.

Like bonds, liabilities, and especially longer dated liabilities, are highly interest rate sensitive. To the extent that the interest rate risk within the liability profile is not hedged, the funded status will also be sensitive to changes in interest rates. When constructing the liability matching/hedging portion of the portfolio the goal is to match

The following table summarizes some key differences between a traditional asset-only strategy versus an LDI investment strategy:

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<th>Asset-Only Strategy</th>
<th>LDI Strategy</th>
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<td><strong>Objective</strong></td>
<td>High risk-adjusted returns over the long term</td>
<td>Manage risk relative to liabilities; reduce volatility of funded ratio (assets/liabilities)</td>
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<td><strong>Risk Measure</strong></td>
<td>Volatility of return; Absolute gain/loss</td>
<td>Volatility or erosion in the funded ratio</td>
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<td><strong>Benchmark</strong></td>
<td>Policy asset mix, peer group</td>
<td>Liability Proxy</td>
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<td><strong>Portfolio Composition</strong></td>
<td>Asset mix overweighted in equities to take advantage of equity risk premium e.g. traditional 60/40 equities/universe fixed income</td>
<td>Divided into two categories: matching assets (longer dated bonds, derivatives) and return-seeking assets (stocks, alternative investments)</td>
</tr>
<tr>
<td><strong>Reasoning</strong></td>
<td>Pension funds are long-term investors. Over time, asset growth will surpass liabilities.</td>
<td>Asset objective should be linked to primary plan objective: funding pension benefits and reducing the volatility of the funded ratio to allow for better management of the cost of the plan over time</td>
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LIABILITY DRIVEN INVESTMENT

the liabilities as closely as possible through the combination of assets that aligns with the duration and inflation sensitivity of the plan’s liabilities.

A natural starting point for investors is to match the overall duration of assets and liabilities. Migrating the bond portfolio from a DEX Universe duration to a DEX Long duration can effectively double the level of interest rate hedging; however, it is likely that some degree of duration mismatch still exists. To further extend duration in the investment portfolio one can shift some of the equities in the portfolio into bonds or introduce a bond overlay allocation.

A plan that fully matches duration can be effectively desensitized to parallel shifts in the yield curve. However, movements in the yield curve are often non-parallel, leading some plans to opt for a more customized approach. A key rate duration approach can be implemented which aligns the duration of assets and liabilities across the yield curve with the objective of immunizing an LDI program from non-parallel shifts in rates.

For plans that are close to fully funded, a cash flow matching approach can be employed where bond maturities closely precede scheduled benefit payments.

Return-seeking assets

Significant deviations from the minimum risk portfolio are common for many plans that are seeking returns beyond what the minimum risk portfolio can deliver. In lieu of contribution increases, allocations to other asset classes and strategies can be a prudent approach to close the gap between assets and liabilities, albeit with greater funded status volatility.

Within the context of the fixed income portfolio, investors can look to garner extra return by overweighting the allocation to corporate credit, and even consider an allocation to Core Plus bond strategies that include high

<table>
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<th>Passive Portfolios</th>
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<td>Passive bond portfolios with a variety of durations</td>
<td>Credit-focused strategies with varying exposures to corporate debt</td>
<td>Option overlay strategies</td>
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<td>» DEX Universe</td>
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<td>» DEX Long</td>
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yield bonds. In a low interest rate environment, overweighting credit (rather than lengthening duration) may be appropriate for a portion of the fixed income allocation in order to add incremental yield. If interest rates decline, the incremental yield can provide a funded status buffer for clients that have not fully hedged the interest rate risk within their liability profile.

For equity market exposure, an allocation can be maintained to passive or active solutions benchmarked against traditional market indices. These strategies focus on matching or outperforming the returns of their capitalization-weighted index, leading to a solution that is typically at least as volatile as the benchmark. An alternative to consider is Low Volatility Equity strategies, which are constructed based on TDAM’s proprietary risk models that forecast volatility and correlations at the security level. For LDI clients, Low Volatility Equity strategies are an example of taking intelligent risks, as they are more highly correlated to pension liabilities than traditional equity solutions. These strategies aim to minimize return volatility by investing in a lower risk, broadly diversified basket of stocks. TDAM’s Low Volatility Equity solutions are expected to earn a higher risk-adjusted return by achieving market returns over the long term with significantly less volatility.

Implementation options
There are many important considerations in deciding when and how to implement an interest rate hedging strategy. TDAM has helped several of its institutional clients transition into a liability driven investment framework while protecting against interest rate increases. Plan sponsors may consider finalizing detailed plans that provide a schedule and trigger points for phasing in the LDI program to ensure that action is taken as opportunities arise. Depending on a plan’s funded status and particular needs, there are different triggers that may be appropriate. These include:

- **Yield.** Specified yield targets trigger action.
- **Time.** An implementation timeline dictates action steps, perhaps monthly, quarterly, or semi-annually.
- **Funded Status.** As funded status improves, the plan reduces its risk levels, and vice versa, according to a pre-approved schedule.

As a leader in active and passive fixed income investment management, we develop both segregated and pooled fund solutions. Using TDAM’s broad toolkit of over 50 institutional pooled funds, we provide our clients with the building blocks required to construct a portfolio that is appropriate for their needs. The common theme that transcends all LDI strategies, portfolios and clients at TDAM is partnership. Our LDI model is based on building long-term client relationships founded on mutual understanding, communication, transparency and cooperation.

**Risk Management:**
Risk management is inherent in the service architecture of Liability Driven Investment solutions. Investors benefit from:

- **Independent monitoring.** An independent 25-plus member Risk Management team oversees and monitors portfolio guidelines and risk controls on a daily basis.
- **A risk management culture.** TDAM fosters a risk management
culture that increases personal accountability and maintains the integrity of our investment management and product management processes.

**Further Investment Considerations:**
All mandates carry some degree of risk. Liability Driven Investment solutions may be impacted by derivative and credit risk. Detailed information about these and other risks is available upon request.

**Achieve Your Most Important Objectives:**
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  - Currency overlay strategies
  - Treasury management pooled funds
  - Liability driven investment solutions
  - Asset mix overlay and more

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