

# Liability-Driven Investing in a Low-Interest-Rate Environment



## Introduction

Aviva Investors North America (“AINA”) has been managing investments under a Liability-Driven Investing (LDI) framework for more than 15 years. AINA represents the North American region of Aviva Investors, a global organization of affiliated asset management businesses. Aviva Investors is a globally integrated asset management business with more than \$370 billion in assets under management worldwide. Affiliation with our insurance company parent, Aviva plc, provides us the insight and expertise to offer highly customized solutions. We work with each institution to develop a plan and investment policy that complements its current investment portfolio.

## Synopsis

This white paper explores the basics of liability-driven investing, describes the Aviva Investors take on LDI, and suggests strategies for implementing such an approach.

## What is liability-driven investing?

Underlying all LDI approaches is the assumption that investment strategy should be developed in relation to the liabilities of the client. Aviva distinguishes its approach by benchmarking portfolio performance against the plan’s specific liability structure, rather than an arbitrary benchmark driven by asset allocation analysis.

## Is LDI a new phenomenon?

Insurance companies globally have been managing asset portfolios while considering the risks of the liability structure for many years. Even before the advent of the derivatives market, many pension plan sponsors operated within the same framework, using strip coupon bonds and other cash bond tools to help manage plan exposures.

## What changes led plan sponsors away from LDI?

The equity bull market of 1980 to 2007 led pension plan sponsors away from traditional liability-driven investing. In the 1970s, equities delivered a paltry low- single-digit rate of return on an annualized basis (S&P 500), while interest rates were between 6% and 7% for much of the decade. This environment was

much more conducive to liability-driven investing; plans had lower allocations to equities and used liability immunization strategies with cash fixed income instruments. This changed in the 1980s, when bond yields increased substantially to 15%, leading to a decrease in the value of plan liabilities. The equity market also was significantly stronger, returning more than 17% on an annualized total return basis over the decade. Thus, the equity culture began.

Pension plans began using a more standard 60/40 asset mix, with fixed income allocations intended to simply protect capital, while targeting growth with equity allocations. This continued through the 1990s, even as bond yields dropped significantly in tandem with falling inflation, which led to an increase in the value of plan liabilities.

Any liability risk concerns were overwhelmed, however, by the huge increase in asset portfolio values: The equity market returned an impressive 18% per annum over the decade. With many plans in a surplus position, consideration of the risks in the plan's liabilities took a back seat to the asset portfolio. Asset growth became the primary focus.

## What changes are leading plan sponsors back to considering LDI?

- 1 The end of the great equity bull market. From 2000 to 2010, the S&P 500 returned a disappointing negative 1%, leading to a drop in the value of plan assets.**
- 2 Rapidly falling interest rates. The 10-year Treasury bond yield fell from 6.5% to 3.50% over the same period, leading to a significant increase in pension plan liabilities. The combination of these two factors has pushed many plans into a significant deficit position.**
- 3 Accounting rules changes. Much of the world is moving to International Financial Reporting Standards (IFRS). Canadian corporations transition to IFRS January 1, 2011, and U.S. corporations move to them January 1, 2014. Under IFRS, previously off-balance sheet pension unamortized actuarial gains or losses will move onto the balance sheet. Corporations with a large pension deficit will experience a significant negative impact on their credit quality and potentially their future funding cost.**

As a result of these three factors, plan sponsors are once again considering the risks of the liability structure in managing their plan assets.

In the last 20-plus years, plan sponsors spent more time considering equity risk, asset allocation risk and active manager selection risk. While they must continue their focus on these risks, interest rate, longevity and inflation risks have now taken a much more prominent position.

## Is LDI a product?

Rather than a product, liability-driven investing is a process or framework of investing an asset portfolio while considering and managing the risks of both assets and liabilities. LDI can, however, help pension plans achieve a number of risk management goals through:

- Immunization of shorter-term liability cash flows
- Duration matching
- Key-rate duration matching

## What is the Aviva Investors LDI philosophy?

Aviva Investors believes that:

- LDI is a framework of investing an asset portfolio while considering and managing the risks of both assets and liabilities.
- Plan sponsors should consider risk on a holistic basis and apportion risk according to their investment goals and tolerances.
- Certain components of overall risk – namely interest rate risk – are uncompensated. These risks can be reduced and minimized to free up the overall risk budget so that compensated risks can be taken elsewhere.
- Asset portfolio changes associated with LDI should not be extreme or implemented with haste. Rather, they should be implemented on a gradual basis.

## Why should plan sponsors consider LDI?

By managing their asset portfolios in an asset-liability framework, rather than in isolation, plan sponsors can better manage overall risk, including interest rate risk. They can then more efficiently allocate risk to other investment classes or risk buckets as part of their overall risk budgeting. This should allow them to better achieve their various plan goals, whether they include decreasing funding volatility, reducing the plan deficit or immunizing short-term liabilities.

## Does LDI mean ‘locking in a loss’?

No. Many market participants believe that LDI implies hedging overall plan interest rate risk at these low levels, which could potentially lock in a pension plan deficit. But this reasoning implies that the only form of alpha provision in the asset portfolio is through the interest rate market, rather than other asset classes. It also assumes that interest rates will absolutely go higher. If we believe that interest rate risk is an unnecessary and uncompensated risk, it follows that plans should better manage this risk. By doing so, they free up the risk budget, allowing the plan to take increased risk elsewhere – such as credit, liquidity, etc. – where the risk is better compensated. In fact, some plans that have taken steps to reduce interest rate risk have in fact increased their allocation to equities, credit and other alpha strategies, which has improved their funding status over time.

## Does LDI just mean using a long bond fund?

No. The duration of many plans’ asset bond portfolios is much shorter than that of their liability portfolios, which results in a significant interest rate mismatch. The implementation of a bond portfolio duration extension, from Core Aggregate or Dex Universe to Long-Term Bond, for example, can be enormously helpful in reducing interest rate risk. It is a somewhat blunt solution to a complicated problem, however. A long bond fund does not address interest rate mismatches at various points along the yield curve. In fact, for some plans, it’s possible that moving from a Core Bond to a Long-Term Bond portfolio will not reduce the plan’s interest rate risk at all, because the risk is concentrated at various points along the curve.

Furthermore, LDI is about more than just addressing an interest rate mismatch; it is about considering the risk of the plan’s assets and liabilities in a holistic framework and constructing investment solutions that address and manage these risks.

## Can a Liability-Driven Investing framework be implemented with cash instruments alone?

Cash fixed income instruments can achieve a great deal for a pension plan using an LDI framework. If the plan has an interest rate mismatch with its assets and liabilities, using strip coupon bonds and longer duration bonds can help form an appropriate investment solution, whether the goal is immunization or duration management. Using provincial and corporate bonds (both strips and regular semi-annual bonds) can add to the alpha-generating ability of the investment portfolio, given the additional credit spread of these instruments. There are limitations to the cash market, however; liquidity is poor to moderate (especially with strip coupons), and there is limited availability of assets for various duration buckets. Thus, a cash-only solution is less precise than one that incorporates derivative instruments.

## Should an LDI framework also use derivatives?

Derivative instruments can significantly enhance the toolbox for an LDI strategy. Interest rate swaps, futures/forwards and collars can be enormously helpful for interest rate management; these instruments can match liability cash flows much more precisely than cash bonds.

Liquidity and flexibility are far greater in derivative markets than cash markets, as well. A derivative overlay strategy will allow the plan to maintain an asset allocation strategy that delivers adequate sources of alpha and beta while it's underexposed to interest rate risk relative to the plan's liabilities. The plan does take on counterparty/credit risk with the various bank counterparties, however, and operational risk increases, because these instruments are more difficult to monitor from an accounting perspective.

## Can an LDI framework include equities and other non-fixed-income asset classes?

Absolutely. Due to their lower correlation with interest rates, asset classes such as equities and real estate can provide effective diversification tools within an asset portfolio. Once a pension plan reduces uncompensated interest rate risk, it can increase allocations to alpha asset classes such as equities and real estate, while maintaining the overall risk budget.

## What types of instruments does Aviva Investors use to implement an LDI framework?

The Aviva Investors LDI framework manages the risks of both assets and liabilities on a holistic basis. We use a deep toolbox of instruments to construct various investment solutions designed to help plan sponsors achieve both their goals. These instruments include the various actively managed Aviva Investors fixed income portfolios, including U.S. Core Aggregate and Canadian Core & Core Plus; cash strip coupon bonds; real return bonds; swaps; futures/forwards; and options.

## How should a plan sponsor consider implementing an LDI plan in a low-interest-rate environment?

We believe that LDI is not one solution or product, but rather a framework or process whereby assets are managed while considering overall risk, including the risk of the liability structure. We believe that uncompensated risk such as interest rate risk should be managed and minimized, allowing the plan to actively allocate its risk budget where it can be compensated, such as in equities and credit.

Interest rates are at generational lows. When plans are examining the interest rate risk component of their portfolios, they should adopt a gradual de-risk glide path. This would entail establishing various parameters and measurable signposts for reducing the plan's interest rate risk over a multi-quarter or multi-year period.

## Your contacts at Aviva Investors



**Julie Perks**

Vice President, Risk & LDI,  
Aviva Investors North America  
E: [julie.perks@avivainvestors.com](mailto:julie.perks@avivainvestors.com)

---



**Doug MacDonald**

President,  
Aviva Investors Canada  
E: [doug.macdonald@avivainvestors.com](mailto:doug.macdonald@avivainvestors.com)

---

### **Important information**

This material contains the current opinions of Aviva Investors North America, Inc., and is not intended to be, and should not be interpreted as, a recommendation of any particular security, strategy or investment product. Such opinions are subject to change without notice. This material is distributed for informational purposes only and is not a recommendation or investment advice. The information herein is based on sources that Aviva Investors believes to be reliable, but it is not guaranteed to be accurate or complete.

This material was produced by Aviva Investors North America. No part of this material may be reproduced in any form or referred to in any other publication without the express written permission of Aviva Investors North America, Inc.