Russell Investments

Russell Research

By: Bob Collie, FIA, Chief Research Strategist, Americas Institutional
John Osborn, CFA, Director, Consulting, Americas Institutional

MAY 2011

LDI's role in pension plan strategy: Risk and return considerations

Liability-driven investing (LDI) has grown in popularity and is now widely recognized, from both the plan's viewpoint and that of the sponsoring corporation, as a way to reduce risk by aligning investment programs more closely with the liabilities they must eventually meet.

In this paper, we look at the role played by LDI from a range of perspectives, both risk-focused and return-focused.

1. Risk: removal of uncompensated risk

Investment strategy is, at its core, about how you manage risk. Risk comes in many forms, and some risks are worth taking if you are well enough paid for doing so. Uncompensated risk, however, is best avoided whenever it is possible to do so.

For a pension plan, the value of liabilities is based on bond yields, creating exposure to changes in interest rates on that side of the balance sheet. This exposure is a considerable source of risk. Indeed, for the typical U.S. pension plan, interest rate risk is second only to equity market risk among the plan's market-related risks. Unlike equity market exposure, interest rate exposure is not a risk for which you should expect to be compensated over the long term. That's because, most of the time, the yield available on long duration bonds is greater than that on short: most investors demand a premium to lend long rather than short.[1]

So by introducing a balancing exposure to interest rates on the asset side of the balance sheet, LDI reduces a major source of uncompensated risk.

2. Return: managing the return target

Since a pension plan's assets are invested with two goals in mind (hedging liabilities and generating investment returns), these goals must be reconciled. One possibility is to divide the portfolio in two: one part a hedging portfolio whose goal is to offset liability behavior, and

[1] It is conceivable that the demand for long bonds from pension plans may eventually change this pattern, creating a flatter yield curve in which lending long does not command a premium.

the other a return-seeking portfolio. In this structure, the hedging objective and the return goal are managed by (a) how much of the total portfolio is dedicated to each portfolio and (b) the way in which the two portfolios are structured.

The LDI program therefore affects the return objective by competing for assets with the return-seeking portfolio. There is quite a degree of choice in how this competition is handled, however.

For example, the same total return might be targeted with a small but aggressive return-seeking portfolio or with a larger but more conservative portfolio. If derivatives and the use of leverage are permitted, there is even more scope to increase return targets while deploying relatively fewer assets. (Leverage, of course, gives rise to a number of other considerations, which we do not have room to explore here.)

Likewise, there are choices in structuring the LDI program. The objective of matching liability behavior can be pursued with a number of different instruments: government- or corporate-issued debt, swaps or other interest rate derivatives. The use of interest rate swaps and/or STRIPS,[2] for example, can provide a fairly high level of interest rate exposure from a fairly small asset base. These tactics can be seen as better ways to do more with less than the use of leverage in the return-seeking portfolio, because here the derivative instruments are being used to balance the exposure that already exists on the liability side of the balance sheet. In other words, the use of derivatives is linked to risk-hedging and not to the more speculative side of investment return-generation.

3. Return: contributing to the return target

The hedging portfolio, to the extent that there is a return expectation attached to it, also contributes to the pursuit of the return target. As mentioned above, the long duration of the hedging portfolio can lead to higher returns than those from a broad bond portfolio. Likewise, the inclusion of corporate bonds tends to result in higher return expectations than Treasuries, thanks to the credit risk premium. A derivative overlay program using swaps receives long and pays the short rate, thus generating income as long as the yield curve is upward sloping. And because it is an overlay, this program does not compete with other assets, so the income is purely additive to the overall fund.

4. Risk: diversification

Because an LDI program divides the assets along the lines of hedging vs. return-seeking, rather than bonds vs. equities, it is natural to think broadly about how to go about that return-seeking objective: what is the relative balance between market-based returns (often referred to as beta) and skill-based returns (or alpha); is there a role for asset classes such as real estate, commodities, infrastructure or emerging market debt; how do we want to handle our strategic and tactical foreign currency exposures; and so on.

Indeed, if it is managed alongside a hedging portfolio that uses derivatives, then a diversified return-seeking portfolio can become, in effect, a plan-level version of the risk parity products that are being marketed by many investment firms at present.[3] Those products are characterized by more equal weighting in their risk exposures than traditional portfolios and by the use of leverage: the first of these characteristics parallels the broad base of the return-seeking portfolio, while the second is provided (from the perspective of the assets, independent of the liabilities) by the use of derivatives in the hedging portfolio.

---

[2] Separate Trading of Registered Interest and Principal Securities, i.e., a bond that is broken down into two components – the interest payments and the principal – which are then traded separately.

[3] Indeed, even the simple lengthening of duration within the bond portfolio can be seen as a step in this direction, in that it reduces the imbalance in the allocation of risk (from an asset-only perspective) between stocks and bonds.

5. Risk: downside protection

We mentioned above that there is a choice of instruments to be used for hedging purposes. While physical corporate bonds tend to offer the closest hedge of liability behavior, there are times when Treasuries or interest rate swaps (which in recent years have been a reasonable proxy for Treasury futures) are selected as the hedging instrument.[4] While this can have negative implications for the long-term return, it does have the attractive side effect of providing an additional layer of tail-risk protection. During periods of severe market disruptions risky assets fall in value, and the flight to quality drives Treasuries and related securities up in price. This was dramatically demonstrated during the 2008 financial crisis.

In summary, LDI programs should be seen as integral to the strategic asset allocation policy. They can enhance both risk management and the return objectives of a plan.

For more information:

Call Russell at **800-426-8506** or
visit **www.russell.com/institutional**

Important information

Nothing contained in this material is intended to constitute legal, tax, securities, or investment advice, nor an opinion regarding the appropriateness of any investment, nor a solicitation of any type. The general information contained in this publication should not be acted upon without obtaining specific legal, tax, and investment advice from a licensed professional.

Please remember that all investments carry some level of risk, including the potential loss of principal invested. They do not typically grow at an even rate of return and may experience negative growth. As with any type of portfolio structuring, attempting to reduce risk and increase return could, at certain times, unintentionally reduce returns.

Bond investors should carefully consider risks such as interest rate, credit, repurchase and reverse repurchase transaction risks. Greater risk, such as increased volatility, limited liquidity, prepayment, non-payment and increased default risk, is inherent in portfolios that invest in high yield (junk bonds or mortgage backed securities, especially mortgage backed securities with exposure to sub-prime mortgages.

Liability Drive Investment (LDI)/Interest Rate Management (IRM) strategies contain certain risks that prospective investors should evaluate and understand prior to making a decision to invest. These risks may include, but are not limited to; interest rate risk, counter party risk, liquidity risk and leverage risk. Interest rate risk is the possibility of a reduction in the value of a security, especially a bond or swap, resulting from a rise in interest rates. Counter party risk is the risk that either the principal or an unrecognized gain is not paid by the counter party of a security or swap. Liquidity risk is the risk that a security or swap cannot be purchased or sold at the time and amount desired. Leverage is deliberately used by the fund to create a highly interest rate sensitive portfolio. Leverage risk means that the portfolio will lose more in the event of rising interest rates than it would otherwise with a portfolio of physical bonds with similar characteristics.

Russell Investment Group, a Washington USA corporation, operates through subsidiaries worldwide, including Russell Investments, and is a subsidiary of The Northwestern Mutual Life Insurance Company.

The Russell logo is a trademark and service mark of Russell Investments.

Copyright © Russell Investments 2011. All rights reserved. This material is proprietary and may not be reproduced, transferred, or distributed in any form without prior written permission from Russell Investments. It is delivered on an "as is" basis without warranty.

First used: May 2011

USI-9848-05-13

[4] The relative attractiveness of different hedging instruments varies over time, both in their effectiveness as hedges for liabilities and in the likely returns that can be expected. For most of 2010 and the first part of 2011, these considerations have led to a preference for long physical exposure.