Throw away your crystal ball – why future interest rate levels don't matter as much as you think

Predicting when interest rates are going to rise has made for a lot of headlines in the financial media, but more often than not, those predictions have been wrong.

Since the financial crisis of 2008, central banks around the world have implemented quantitative easing and other forms of monetary policy to spur growth and keep yields on government bonds low. These actions make it particularly difficult to get a pulse on when rates are going to move higher and by how much. And let's not forget that even if central banks nudge rates higher, the only thing they directly control is the overnight lending rate. There's no guarantee that longer term rates, which are more relevant to pension plans, will follow suit.

Despite the difficulty in predicting rates, in our experience many Canadian defined benefit (DB) plan sponsors have a strong conviction that rates have nowhere to go but up. As a result, these plan sponsors are playing a waiting game by minimizing new allocations to fixed income assets and keeping the duration of their existing fixed income assets shorter than their plans' liabilities. Many have done this by parking their fixed income assets in the FTSE®/TMX Canada Universe Bond Index.

This strategy has cost some plan sponsors over the last several years as interest rates have continued to fall instead of rise. Discussions about "low for long" or even negative interest rates (as we have seen in parts of Europe and Japan) are becoming more common than discussions about rapid interest rate increases.

Wouldn't it be great to have an investment strategy that didn't force plan sponsors to make calls on future interest rate movements?

We believe that a liability driven investment (LDI) strategy does exactly this – providing a stable funded status over a wide variety of possible future interest rate scenarios and allowing plan sponsors to stop having to predict where interest rates will go and focus more time on their core business.

Our analysis will show that rates will need to rise significantly more than the market expects to justify waiting for interest rates to increase. In addition, even if the Bank of Canada increases the overnight rate, we will illustrate using historical data that this does not necessarily mean long-term rates will also increase.

Let's take a look at this more prudent strategy and how it can help plan sponsors manage their pension risk.

I see a tall, dark LDI portfolio in your future...

To illustrate the potential benefits of an LDI strategy, let's look at a hypothetical example of the pensioner portion of a DB pension plan and compare two possible investment approaches.

About the plan

- The pensioner liabilities have a duration of 10 years.
- The plan is most concerned about solvency funding.
- Benefits are not indexed.
- The discount rate was **2.69%** at June 30, 2016.

FTSE®/TMX Canada Universe Bond Index

Let's start by looking at the yield characteristics if the assets backing the pension liabilities are invested in the FTSE®/TMX Canada Universe Bond Index – a strategy that many plan sponsors have employed over the last few years. As you can see in Table 1 below:

- The plan's assets don't keep up with the plan's discount rate.
- There is **0.92%** of yield mismatch each year.

If this yield mismatch continues to hold, our forecast is that the plan's funded ratio will decrease by about **5%** over the next five years due solely to this yield shortfall.

Liability driven investment portfolio

By way of comparison, let's construct a hypothetical asset portfolio that matches the plan's liabilities – that is, an LDI portfolio. An LDI framework makes the fixed income assets work smarter:

- The asset portfolio is constructed to move in a similar manner to the liabilities.
- The duration and key rate durations are matched.
- There is a higher allocation to credit assets to minimize the plan's credit and yield mismatch risk.
- There is a higher allocation to illiquid private assets (e.g., private fixed income and commercial mortgages) to generate additional yield and provide better diversification.

As you can see in Table 1 below, the yield on the Hypothetical LDI Portfolio exceeds the plan's discount rate by **0.24%**.

TABLE 1 – COMPARISON OF PORTFOLIO CHARACTERISTICS (INCLUDES HYPOTHETICAL DATA)

Yield characteristics[1]	FTSE®/TMX Canada Universe Bond Index	Hypothetical LDI Portfolio[2]	Difference
Duration (years)	7.7	10	2.3
Risk free rate	0.97%	1.20%	0.23%
Credit spread	0.80%	1.73%	0.93%
Total yield	**1.77%**	**2.93%**	**1.16%**
Discount rate	2.69%	2.69%	
Yield mismatch	**-0.92%**	**0.24%**	

[1] All data as at June 30, 2016.
[2] The LDI portfolio contains 10% Canada bonds, 15% provincial bonds, 50% public corporate bonds, 20% private fixed income and 5% commercial mortgages.

The above data is hypothetical and does not represent an actual client portfolio. Do not place undue reliance upon such forward-looking statements. Please refer to the disclaimer section for details on the limitations and risks with relying on hypothetical data.

As you can see in Table 1, even in today's low-rate environment, there are a couple of factors in favour of managing fixed income assets using an LDI portfolio.

1

The **first consideration** is that the Canadian yield curve remains upward sloping, meaning longer-term assets will earn additional yield over shorter-term assets. In our example, the Hypothetical LDI Portfolio picks up an additional **0.23%** of yield by extending asset duration to match the hypothetical plan's liability duration.

2

The **second consideration** is the yield pick-up available from credit assets. In our experience, carefully curated investment grade credit compensates pension plans for the additional risk of moving away from the risk-free yield curve. In addition, a high allocation to credit assets is a better match for the plan's solvency liabilities, which are heavily dependent on credit. Including private fixed income and commercial mortgages in the LDI portfolio may also provide additional yield and diversification. In our example, the Hypothetical LDI Portfolio picks up an additional **0.93%** of yield by adding investment grade corporate credit and private assets while better matching its credit exposure to its liabilities.

Overall, the Hypothetical LDI Portfolio yields **1.16%** more than the FTSE®/TMX Canada Universe Bond Index as a result of these two considerations.

KEY TAKEAWAY#1: Investing in the Hypothetical LDI Portfolio may provide a higher expected yield and better risk management than investing in the FTSE®/TMX Canada Universe Bond Index.

Why are bonds a good match for pension liabilities?

It's often said that bonds are a good match for pension liabilities, but why is that? Pension promises are paid over the lifetime of plan members – often for 30 or more years – and are fairly predictable. Solvency and accounting liabilities are determined by discounting these pension promises using yields derived from a reference bond portfolio.

Investing a plan's assets in a bond portfolio that proxies the reference bond portfolio means that the plan's assets behave similarly to the plan's liabilities. The result is a more stable funded status.

The future is cloudy – what if rates change?

We've seen that a properly constructed LDI portfolio can lead to higher expected yields and better risk management compared to the FTSE®/TMX Canada Universe Bond Index, but what happens when interest rates rise? Does the longer duration of the LDI portfolio lead to larger losses, which will wipe out its higher expected yield?

It depends on the size of the interest rate increase. Based on our modelling, the breakeven rate increase – that is, the rate increase required for the FTSE®/TMX Canada Universe Bond Index and the Hypothetical LDI Portfolio to generate the same total return – is a **2.50%** parallel shift over a five-year period (or **0.50%** per annum).

- If interest rates rise **more than 2.50%** over the next five years, then investing in the FTSE®/TMX Canada Universe Bond Index was the right decision.
- If interest rates rise **less than 2.50%** over the next five years, then investing in the Hypothetical LDI Portfolio was the right decision.

In Table 2, we illustrate the relative performance of the two portfolios on our hypothetical pension plan's funded status under a wide range of potential future interest rate scenarios. We have assumed that the plan is fully funded at June 30, 2016, and that as benefits of existing pensioners are paid out, they are replaced with new pensioners.

The Hypothetical LDI Portfolio minimizes the volatility of funded status over the five-year time horizon under a range of potential interest rate scenarios. The same cannot be said of the FTSE®/TMX Canada Universe Bond Index – its funded status is worse if interest rates don't rise by more than 2.50%.

TABLE 2 – FUNDED STATUS UNDER VARIOUS RISK FREE RATE SCENARIOS (INCLUDES HYPOTHETICAL DATA)

	Funded status – June 30, 2021	
Change in risk free rate from June 30, 2016, to June 30, 2021	FTSE®/TMX Canada Universe Bond Index	Hypothetical LDI Portfolio
- 0.10%/year	94%	**101%**
0.00%/year	95%	**101%**
+0.25% /year	99%	**101%**
+0.50% /year	101%	**101%**
+0.75 %/year	**103%**	101%

[1] All data as at June 30, 2016.
[2] The LDI portfolio contains 10% Canada bonds, 15% provincial bonds, 50% public corporate bonds, 20% private fixed income and 5% commercial mortgages.

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KEY TAKEAWAY#2: The Hypothetical LDI Portfolio is a more effective solution than the FTSE®/TMX Universe Bond Index unless interest rates increase by more than **2.50%** over the next five years.

You are going on a mysterious journey – any clues from the past?

In this new world of low interest rates, a **2.50%** rate increase over five years seems like a high hurdle rate to bet against.

To provide perspective, let's take a look at what level of future interest rate increases are being anticipated by the bond market. As of June 30, 2016, the bond market was pricing in a **0.71%** interest rate increase on the one-year Government of Canada bond and a **1.05%** interest rate increase on the 10-year Government of Canada bond over the next five years. While in our view forward rates are not usually good predictors of actual outcomes, they do give us some sense of what the market is anticipating based on the information available today.

Another important consideration is that generally only short-term rates are anchored by monetary policy. That is, if the Bank of Canada moves the overnight rate higher, we may not see a corresponding increase in long-term rates, which can depend on many other factors.

In Table 3, we've summarized the outcomes from the five times that the Bank of Canada increased interest rates in the last 20 years.

TABLE 3 - BANK OF CANADA RATE HIKE HISTORY

Period	Total rate hike	Yield curve	Change in 10-year spot rate	Change in 30-year spot rate
Nov 8, 1996 – Aug 26, 1998	2.75%	**flattens**	-0.83%	-1.34%
Nov 17, 1999 – May 17, 2000	1.25%	**flattens**	0.17%	-0.67%
Apr 16, 2002 – Apr 15, 2003	1.25%	**flattens**	-0.52%	-0.21%
Sep 7, 2004 – Jul 9, 2007	2.50%	**flattens**	-0.13%	-0.76%
May 28, 2010 – Sep 8, 2010	0.75%	**flattens**	-0.30%	-0.13%

During the rate increase periods noted in Table 3, longer duration credit spreads typically increased only slightly, which was not enough to materially counterbalance the decrease in risk free rates noted above.

In each of the last five interest rate increases by the Bank of Canada, the yield curve flattened and in most cases, the 10- and 30-year spot rates actually declined. It is also interesting to note that most of the recent rate hikes were all at or below the cumulative yield of **2.50%** required in our breakeven analysis. So historically, there has been minimal relationship between Bank of Canada rate hikes and changes in long rates.

An additional factor that could keep long-term bond yields low in today's environment is the significant demand for long duration corporate assets from pension plans and insurance companies. To prepare for interest rate increases, plan sponsors have been working with their consultants to construct glidepaths with either interest rate or funded status triggers that phase into long bonds when rates move higher. As glidepath targets are met, strong demand for longer dated fixed income assets may work to flatten the yield curve or tighten credit spreads, even when short rates are rising.

KEY TAKEAWAY#3: Rate increases in the short end of the yield curve do not necessarily lead to rate increases in the long end of the yield curve.

Living happily ever after

We don't know what the future holds for interest rates – a meaningful increase in interest rates is certainly not guaranteed especially given the negative rates in parts of Europe and Japan.

For the sake of pension plans with significant interest rate exposure, we hope that interest rates do indeed move higher over time, but we think that investing short-term and waiting for interest rates to rise is a risky proposition. This strategy requires that the following stars align:

- Interest rates need to rise by more than the market expects.
- Long-term rates need to move higher – not just short-term rates.
- Long-term rates need to move higher despite the potential increase in demand from pension plans and insurance companies.

On the other hand, an LDI investment approach may be a better option for sponsors worried about risk and volatility in their pension plan when they could be focused on their core business.

It provides a more stable funded status under many scenarios by making fixed income assets work smarter. Isn't that a better outcome than having to rely on a crystal ball?

About Sun Life Investment Management

The Sun Life Investment Management group of institutional investment management companies comprises Bentall Kennedy Group in North America, Prime Advisors, Inc. and Ryan Labs Asset Management Inc. in the United States, and Sun Life Institutional Investments (Canada) Inc. in Canada. These operations have combined third-party assets under management of $49 billion, as of June 30, 2016. Sun Life Investment Management is supported by the investment division of Sun Life Assurance Company of Canada that manages $141 billion in assets under management for the Sun Life Financial group of companies as of June 30, 2016.

Sun Life Institutional Investments (Canada) Inc. collaborates with Sun Life Assurance Company of Canada's Defined Benefit Solutions team to provide liability driven investing solutions. Sun Life Institutional Investments (Canada) Inc. manages the underlying investments that constitute the LDI mandates and partners with DB Solutions to develop customized strategies, grow new business and provide ongoing client servicing.

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