



Quebec Regulation Ushers in a New Era for Liability-Driven Investment (LDI) Pension Solutions

After months of suspense, the final details of the new funding requirements for private-sector pension plans registered in Quebec are now known. Under the new regulation, employers and pension professionals across the province are now well equipped to assess the effectiveness of their investment policy as it pertains to the expected level and volatility of their pension plan contributions. While the removal of mandatory funding of solvency deficiencies may encourage some plan sponsors to move away from traditional liability-driven investment solutions, many others have been quick to take this opportunity to review their asset allocation and to design customized portfolio solutions to take advantage of the new stabilization provision. Quebec's new funding rules are not only advantageous for plan sponsors who decide to manage their interest rate risk exposure, but they also allow employers to optimize and to personalize their risk management strategies; plan sponsors can simultaneously increase their long-term expected return, reduce their contribution volatility and better align their funding and accounting objectives. These desirable outcomes were historically difficult to reconcile under the solvency methodology.

As a quick introduction for those who are less familiar with the new Quebec regulation, the legislation removes the funding of solvency deficits. Instead, it requires plan sponsors to fund a new "stabilization provision," which is added to going-concern liabilities. The percentage level of this stabilization provision is determined as shown in the table below and is based on two criteria: the percentage of assets invested in return-seeking assets (i.e., non-fixed income instruments) in accordance with the target in the investment policy statement; and the hedge ratio (i.e., the ratio between the duration of assets and plan liabilities).

Return-Seeking Assets	Hedge Ratio: Duration of Assets / Duration of Liabilities				
	0%	25%	50%	75%	100%
0%	12%	10%	8%	6%	5%
20%	14%	12%	10%	8%	6%
40%	16%	14%	12%	10%	8%
50%	17%	15%	13%	11%	9%
60%	19%	17%	15%	13%	11%
70%	22%	20%	18%	16%	14%
80%	24%	22%	20%	18%	16%
100%	27%	25%	23%	21%	20%

The objective of the stabilization provision is straightforward: the more risk you assume in your pension plan, the higher the stabilization provision and the bigger the margin you must fund to increase the security of the pension benefits. Although being utterly prudent and investing 100% in fixed income instruments with matching duration could move the stabilization provision to its lowest possible level of 5% (top right corner), employers must also consider this strategy's impact on the discount rate used by the actuary to value the plan's liabilities and to determine pension contributions. Even though adding more fixed income assets to the portfolio and increasing

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the hedge ratio can reduce pension risks, moving to a 5% stabilization provision might not be the most desirable outcome. Instead, employers should aim for the optimal position in the stabilization table that offers the lowest, most stable expected future contributions required to fund their pension promises in the most secure and efficient manner.

IMPACT OF ASSET ALLOCATION ON THE STABILIZATION PROVISION

Depending on their current investment policy and level of interest rate risk management, plan sponsors have different stabilization provision factors. For a typical investment policy of 50% equities and 50% universe bonds, the addition of long-term bonds or alternative asset classes to the portfolio has a very positive impact on the stabilization provision and going-concern liabilities. What other steps can be taken to improve the efficiency of the asset portfolio? First, let's look at an example of how basic asset allocation modifications affect the total going-concern liabilities.

	Typical Allocation (Universe Bonds)	Scenario 1 (Long-Term Bonds)	Scenario 2 (Long-Term Bonds)	Scenario 3 (Long-Term Bonds)
- Return-seeking assets	50%	50%	25%	0%
- Fixed income assets	50%	50%	75%	100%
- Duration of liabilities	15 years	15 years	15 years	15 years
- Duration of assets	7.5 years	15 years	15 years	15 years
- Hedge ratio ¹	25%	50%	75%	100%
Long-term expected return (as at December 31, 2015)	4.50%	5.25%	4.40%	3.50%
Going-concern (GC) liabilities ²	\$100 M	\$ 89 M	\$102 M	\$115 M
+ Stabilization provision	+15%	+13%	+8.5%	+5%
= Total GC liabilities	\$115 M	\$101 M	\$111 M	\$121 M

1. Hedge ratio = (fixed income assets %) x (duration of assets) ÷ (duration of liabilities)

2. Going-concern liabilities are different for each scenario because of the change in the long-term expected return of the assets, which affects the discount rate used to value plan liabilities.

The above table illustrates two different strategies: 1) converting universe bonds (with a duration of 7.5 years) into long-term bonds (with a duration of 15 years); and 2) increasing the allocation to fixed income assets versus return-seeking assets. While the first strategy (shown in Scenario 1) clearly results in a significant reduction in going-concern liabilities because of the increase in the long-term expected return and the decrease in the stabilization provision, we can observe that the other proposed solution of simply increasing the allocation of fixed income assets does not produce the intended results. Even though the actual outcome will vary depending on the specific characteristics of each pension plan, we can observe from the example above that both Scenario 2 and Scenario 3 would result in greater liabilities than would Scenario 1.



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What, then, can plan sponsors do if they wish to reduce the financial burden of their pension plan in a risk-controlled framework, without the unintended consequences of reducing the long-term expected return and therefore increasing their liabilities? How can they increase the hedge ratio without significantly reducing the allocation to return-seeking assets? Any movement toward the far-right side of the stabilization table (i.e., toward a 100% hedge ratio) would generally produce positive outcomes for the pension plan, while moving toward the top of the table (i.e., reducing exposure to return-seeking assets) may not be as favorable, depending on the asset classes involved and the financial position, current service cost and other specifics of the pension plan. The primary objective should be to efficiently increase the hedge ratio in order to maximize the potential benefits for the plan sponsors. Moving to a hedge ratio of 75% or 100% can not only reduce the volatility of pension contributions by eliminating most of the interest rate risks, it could also decrease the absolute level of these contributions.

BOND OVERLAY STRATEGIES

To increase the hedge ratio while maintaining the same overall allocation to return-seeking assets, plan sponsors have two options: to increase the duration of their fixed income assets or to obtain additional interest rate exposure through fixed income derivative instruments (i.e., bond overlay strategies).

The first option can be beneficial for low-duration pension plans. For example, a 10-year-duration pension plan could invest its fixed income portfolio at an average duration of 15 years and obtain a 150% interest rate exposure for each dollar allocated to fixed income assets. The pension plan would still be exposed to yield curve risk, because assets and liabilities might react differently to non-parallel shifts in the yield curve, but this simple strategy would increase the pension plan's hedge ratio and decrease the percentage level of the stabilization provision. This solution, however, might not be as beneficial for long-duration pension plans, because it is more difficult to build an efficient portfolio with a duration of 20 or more years with only long physical bonds, unless the plan sponsor is willing to reduce the yield to maturity of its fixed income portfolio by investing mostly in federal or provincial zero-coupon bonds.

The other way to increase interest rate exposure is through bond overlay strategies. This approach allows a plan sponsor to obtain the additional exposure required to reach its objectives. For example, by using overlay instruments, a pension fund could obtain an interest rate hedge ratio of 100% by allocating only 50% of the fund to fixed income assets and keeping the other 50% invested in return-seeking assets. Such a solution could result in higher long-term expected returns, while decreasing the stabilization provision and the volatility of the financial position and contributions.

It is important to note that, in a risk management context, overlay strategies and derivative instruments are not used to increase the level of risk taken by a pension plan. On the contrary, these financial instruments are used to manage the interest rate sensitivity of pension assets in order to match as closely as possible the interest rate risks inherent to pension liabilities and to reduce the overall risk level. Depending on the comfort level of each plan sponsor and the need for a sophisticated and personalized solution, overlay strategies can range from pooled funds to more customized segregated solutions. Let's start by taking a look at the types of outcome that can be expected from such overlay solutions.



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	Typical Scenario (Same as above)	Scenario 1 (Same as above)	Scenario 4	Scenario 5
- Return-seeking assets	50%	50%	50%	50%
- Fixed income assets - Physical	50%	50%	50%	50%
- Fixed income assets - Overlay	- %	- %	25%	50%
- Duration of liabilities	15 years	15 years	15 years	15 years
- Duration of assets	7.5 years	15 years	15 years	15 years
- Hedge ratio ¹	25%	50%	75%	100%
Long-term expected return (as at December 31, 2015)	4.50%	5.25%	5.60%	5.90%
Going-concern (GC) liabilities ²	\$100 M	\$ 89 M	\$84 M	\$80 M
+ Stabilization provision	+15%	+13%	+11%	+9%
= Total GC liabilities	\$115 M	\$101 M	\$94 M	\$87 M

1. Hedge ratio = (fixed income assets %) x (duration of assets) ÷ (duration of liabilities)

2. Going-concern liabilities are different for each scenario because of the change in the long-term expected return of the assets, which affects the discount rate used to value plan liabilities.

In the above examples, we keep the same 50/50 allocation between return-seeking assets and fixed income assets. The only difference is that we use overlay instruments to obtain additional interest rate exposure, from 0% to 50% of the total asset value. The strategy has two direct beneficial outcomes: first, the increase in the hedge ratio will reduce the stabilization provision percentage, from 13% to 9% in the table above; and, second, the use of the overlay strategy will increase the long-term expected return on the assets because of the positive expected return from borrowing money at short-term interest rates and investing the proceeds in long-term bonds (known as the term premium). The use of such derivative instruments will increase the sensitivity of the plan assets to movements in interest rates, meaning that the portfolio will be more sensitive to an increase or decrease in market rates. Nevertheless, as long as the methodology used by the actuary to establish the discount rate reflects the movements in market rates, a hedge ratio of close to 100% means that assets and liabilities alike would react similarly to such movements, minimizing the impact on the financial position and contributions.

To obtain the desired hedge ratio, plan sponsors could use a product such as the **Fiera 3X Long-Term DB Risk Management Fund**, which provides a duration of about 45 years for each dollar invested in the fund. The fund uses overlay instruments, thereby eliminating the need for pension plans to trade derivative instruments directly in their portfolios. Investors who wish to take advantage of this solution could purchase units of the pooled fund – in exactly the same way as with any other pooled fund – and obtain ultra-long-duration exposure to market rates.

Alternatively, plan sponsors could use fixed income overlay instruments directly in their fixed income portfolios to achieve precise hedging parameters that can evolve dynamically to match their particular needs and objectives. Hedging parameters can also vary over time, depending on certain triggers or market conditions. The use of such strategies should be evaluated in the context of the overall impact on going-concern liabilities and pension contributions – in terms of both the stabilization provision and the long-term expected return on assets.

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CORPORATE BONDS AND ACCOUNTING LIABILITIES

For Quebec pension plans whose solvency valuation was the main driver of pension contributions, the use of corporate credit in a fixed income portfolio tended to give rise to the same outcomes: a higher yield to maturity, but an increased volatility of the solvency financial position and pension contributions. Given that prescribed solvency interest rates are based solely on Government of Canada yields, the use of provincial or corporate bonds in a pension portfolio typically creates noise and volatility in the asset portfolio versus the solvency liabilities. This situation was particularly unpleasant for plan sponsors who also wished to manage their pension costs on an accounting basis, whereby the interest rates used to value the accounting liabilities were instead based on high-quality corporate bonds. Employers hoping to manage their risks on both the solvency basis and the accounting basis often had to settle for a compromise solution balancing two competing objectives; completely hedging one basis could be done only at the expense of the other.

With the new funding rules applicable in Quebec, new opportunities are available to the province's private-sector plan sponsors. Whereas solvency interest rates continue to be based on Canada bonds, the discount rate used to value the liabilities on a going-concern basis is instead based on the long-term expected return on the plan assets, which takes into consideration the actual investment policy statement and asset allocation. Investing a certain percentage of fixed income assets in corporate bonds will be reflected in the calculation of the discount rate assumption used in the going-concern valuation. The inclusion of corporate credit now has the advantage of narrowing the gap between funding and accounting liability-hedging solutions, as both bases benefit from the asset class, in terms of both expected return and financial position volatility.

A BRIGHTER FUTURE FOR PLAN SPONSORS?

As we outlined last year in our [Special LDI Editorial](#) after the publication of Quebec's Bill 57, we strongly believe that plan sponsors can benefit from the new changes in funding requirements by maintaining a strong risk management culture. The existence of the stabilization provision shows that pension legislators encourage risk management by rewarding employers who take steps to manage their pension risks. The solutions used to manage those risks will continue to evolve under this new regulatory framework, and plan sponsors who continue to view their asset performance relative to their liabilities should benefit from these new opportunities. It is now much easier to achieve funding and accounting objectives at the same time – while maintaining an attractive long-term expected return and managing contribution volatility.

Whether you are a consultant or a plan sponsor, we would be pleased to discuss these topics with you at greater length. Should you be interested, please contact ldi@fieracapital.com.

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