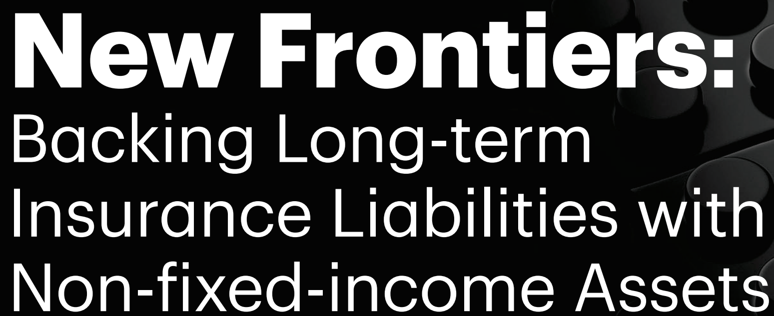
TD Asset Management

Investor Knowledge + 20 Minutes
= New Thinking



New Frontiers: Backing Long-term Insurance Liabilities with Non-fixed-income Assets

David Hong, FSA, CFA, Vice President
Monish Arora, CFA, Vice President
Carl Elia, MBA, CFA, Vice President & Director

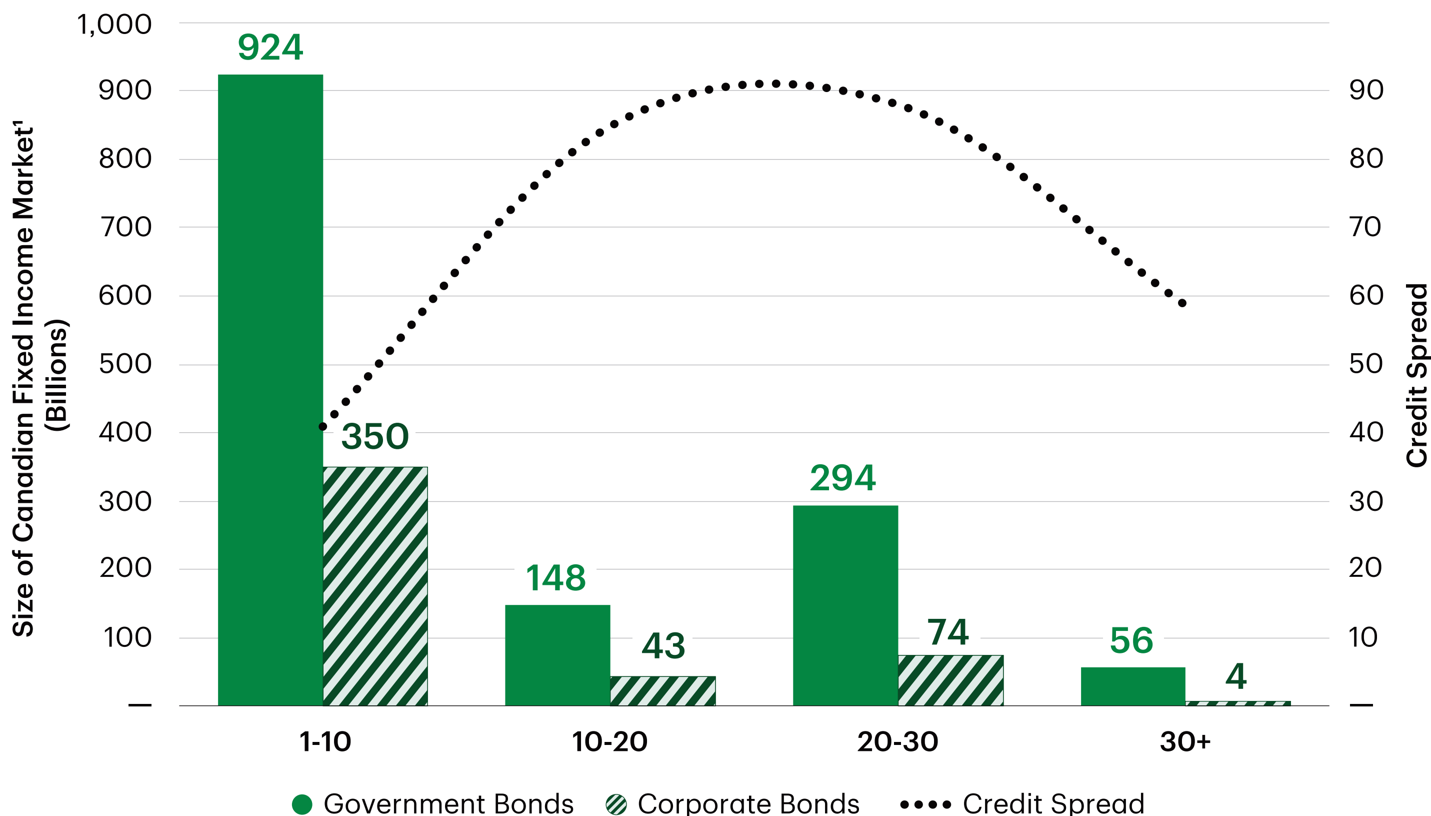
At a Glance

- The options available to Canadian insurers when designing hedging programs are limited due to the structure of the Canadian fixed income market
- Without access to private market instruments or specialized investment strategies, life insurers could struggle to generate returns in their liability-backing portfolios
- A carve-out strategy may be used to generate returns by compensating for the limited availability of long-term credit in the Canadian market
- TD Asset Management Inc. (TDAM) has numerous professionals with actuarial and investment expertise who can help provide insurance clients with unique insight and solve their most important challenges

In designing hedging programs to back long-term life insurance reserve liabilities, the options available to Canadian insurers are limited due to the structure of the Canadian fixed income market. The availability of public bonds is greatly limited at the long end of the yield curve, particularly for corporate bonds that provide incremental spread over their government counterparts. This results in insurers having to invest in long government bonds with low incremental spread above the risk-free rate – a strategy that can be particularly expensive in today's challenging investment environment.

There is also high demand for long duration fixed income assets from defined benefit pension plans and other life insurers relative to limited supply, creating additional downward pressure on long bond yields and compensation to investors.

Without access to private market instruments or specialized investment strategies, life insurers could struggle to generate returns in their liability-backing portfolios, increasing the amount of statutory reserve held, decreasing investment income generated and limiting the insurer's ability to provide competitive product pricing.



Source: FTSE, TD Asset Management Inc. Data as of December 31, 2021.
[1]Excludes bonds with amount outstanding less than $250MM.

Without access to private market instruments or specialized investment strategies, life insurers could struggle to generate returns in their liability-backing portfolios.

The suitability of carve-out strategies

A carve-out strategy may be used to solve this issue by compensating for the limited availability of long-term credit in the Canadian market. The strategy relies on using non-fixed-income (NFI) assets, such as equities, real estate or infrastructure investments to back long-term liability cash flows after a certain number of years. While backing insurance liabilities with NFI assets could introduce mismatch risk arising from the market risk of the NFI assets and the interest risk associated with liability cash flows, it could also enhance returns and reduce reserves held.

Real Estate and Infrastructure

Real estate

Direct ownership in office, retail, industrial and multi-unit residential properties with stable, long-term rental income streams. Real estate investing can provide an opportunity for participating in the capital appreciation of the underlying properties, contracted rental income and rental rate growth, and a degree of inflation protection.

It is potentially well suited to be part of the insurer's portfolio to diversify and enhance returns on a risk-adjusted basis.

Infrastructure

Investing in privately purchased physical assets that provide essential services can be attractive given their monopolistic attributes, strategic location or regulatory protection (e.g. airports, toll roads, regulated utilities, independent power producers, etc.).

Earning returns from the revenue generated by the operation of these underlying assets can be attractive for investors that can afford to take a long-term perspective. These assets typically provide a diversified source of return enhancement and inflation protection.

In evaluating the suitability and trade-off of carve-out strategies, it is important to take a multi-faceted approach and consider the following objectives and constraints that are unique to Canadian insurers:

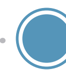
Economic benefits

In designing the strategy, insurers should consider the characteristics of the NFI assets used in construction of the carve-out, as well as if the asset class under consideration meets the potential liquidity needs of the product line(s). Factors that could contribute to the potential liquidity needs of the investment portfolio include product features, premium structures, contingencies covered and policyholder behaviour.

Capital efficiency

The soundness of the Canadian insurance industry depends on a set of frameworks created by federal and/or provincial regulators. Given the Superintendents' view on interest rate risk, market risk and credit risk, when considering various asset strategies, it is important to understand the impact on regulatory capital ratios and other key metrics with the contemplated investment strategy.

Financial statement impact

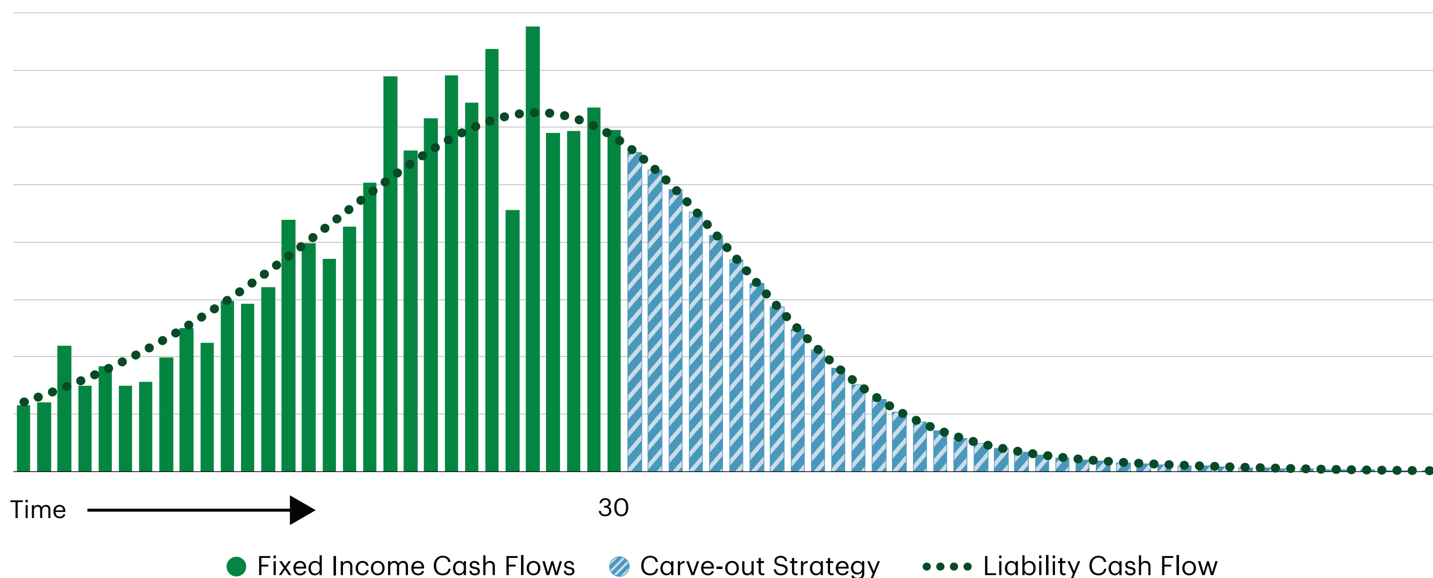


With the regulatory encouragement to cash flow match with liability cash flows, it is important to also consider the impact of a carve-out under a cash flow adequacy testing framework. In addition, with the implementation of IFRS 17 (as well as IFRS 9) in 2023 where new accounting designations are introduced and liability valuation is de-coupled from the investment portfolio, the strategy should be examined under the lens of the new accounting standards as well.

A case study

To bring the benefits and considerations of a carve-out strategy to life, we look to evaluate the risk-return trade-offs using a variety of NFI assets against a set of long-term liability cash flows, taking into account objectives and considerations relevant to Canadian insurers. In this example, we have chosen a set of long duration liabilities and a time horizon of 30 years as the cutoff point where longer cash flows are backed with NFI assets.

An Illustration of the Carve-out Strategy



Source: TD Asset Management Inc. Data as of December 31, 2021.

Economic benefits

As a percentage of the total, the present value of liability cash flows past 30 years is approximately 17.5%, leading to an equivalent allocation to NFI assets in the three carve-out strategies. The carve-out strategies generate meaningful incremental return over the fixed income only portfolio on both gross and net expected return bases, which the latter takes into consideration the cost associated with default risk and the cost of increased regulatory capital requirements under the Life Insurance Capital Adequacy Test (LICAT) framework.

Allocation	Fixed Income	Carve-out: Equities	Carve-out: Canadian Real Estate	Carve-out: Global Infrastructure
Public Fixed Income	100.0%	82.5%	82.5%	82.5%
Canadian Equities	0.0%	17.5%	0.0%	0.0%
Canadian Real Estate	0.0%	0.0%	17.5%	0.0%
Global Infrastructure	0.0%	0.0%	0.0%	17.5%
Gross Expected Return	2.42%	4.05%	4.22%	4.73%
Asset Default Provision[1]	0.04%	0.03%	0.05%	0.05%
Cost of Capital	0.03%	1.31%	1.07%	1.08%
Net Expected Return	2.35%	2.71%	3.11%	3.60%

Source: Canadian Institute of Actuaries, TD Asset Management Inc. Data as of December 31, 2021.

[1]Based on the 2020 Appointed Actuary Survey of C-1 Practices and Provisions of Life and Health Insurance Organizations in Canada; On a best estimate basis.

Capital efficiency

To breakdown the increased LICAT capital requirements, we can dive deeper into the risk factors that contribute to the overall capital risk charge. Overall, the two primary risk factors that contribute to the increased capital requirements are the interest rate risk factor and the market risk factor.

Capital Efficiency	Fixed Income	Carve-out: Equities	Carve-out: Canadian Real Estate	Carve-out: Global Infrastructure
LICAT Capital Factor	0.2%	9.5%	7.7%	7.8%
Credit Risk Factor	0.0%	0.0%	0.2%	0.2%
Interest Rate Risk Factor[1]	0.2%	3.3%	3.3%	3.5%
Market Risk Factor[2]	0.0%	6.1%	4.2%	4.1%[3]
Cost of Capital[4]	0.03%	1.31%	1.07%	1.08%

Source: Office of the Superintendent of Financial Institutions, TD Asset Management Inc. Data as of December 31, 2021.
[1]Interest rate risk factor = loss under the most adverse prescribed LICAT interest rate stress scenario / portfolio market value.
[2]Excluding interest rate risk factor.
[3]Assuming currency hedged/no currency risk.
[4]Cost of capital = target capital ratio × LICAT capital factor × (required return on capital – surplus return) / (1 – tax rate); target capital ratio = 170%, required return on capital = 10%, surplus return = 4%, tax rate = 26.5%.

Overall, the two primary risk factors that contribute to the increased capital requirements are the interest rate risk factor and the market risk factor.

Interest rate risk factor: Since NFI assets typically do not provide direct interest rate exposure, this creates some mismatch risk between long-term liabilities and the carve-out assets that back them – this is accounted for by the increased interest rate risk factor relative to the fixed income only portfolio. While not a direct hedge to long-term liabilities, it is worthwhile to note that alternative assets can generate regular cash flows in the form of rental income (real estate) or contractual income (infrastructure) that are interest rate sensitive, providing some additional hedging benefits over traditional equities.

Market risk factor: Accounts for the underlying return characteristics and volatility associated with the NFI asset classes. As real estate and infrastructure assets are typically less volatile than equities, their incorporation in a carve-out strategy provide some regulatory capital relief in comparison. In addition, since alternative assets generate regular cash flows in the form of rental or contractual income, their notional exposure to capital appreciation return is lower compared to the equity carve-out, further reducing the market risk capital requirement.

Financial statement impact

While the C-3 margin under the Canadian Asset-Liability Method (CALM) reserving approach is higher for the carve-out strategies, this increase is more than offset by a higher reserving discount rate, translating to a lower reserve overall. Under IFRS 4, this decrease in reserve would translate to an increase in the insurer's net income.

CALM Basis	Fixed Income	Carve-out: Equities	Carve-out: Canadian Real Estate	Carve-out: Global Infrastructure
Base Discount Rate[1]	2.35%	2.96%	3.29%	3.60%
C-3 Margin	0.01%	0.31%	0.30%	0.43%
Net Income Impact ($MM)[2]	Not applicable	4.7	9.3	11.7

Source: TD Asset Management Inc. Data as of December 31, 2021.

[1]Base discount rate includes expected default provisions on fixed income, market shift adjustment for NFI assets and margins for adverse deviation

[2]Net income impact = change in CALM reserve × (1 – tax rate); assumes a CALM reserve of $100MM for the fixed income only strategy.

Derivative overlay

Multi-currency hedging

As part of prudent risk management, managers of alternative asset classes often seek to diversify holdings across sectors and geographies as a key risk mitigation tool. As a result, asset classes such as global infrastructure can have exposure to foreign currencies on the underlying holdings.

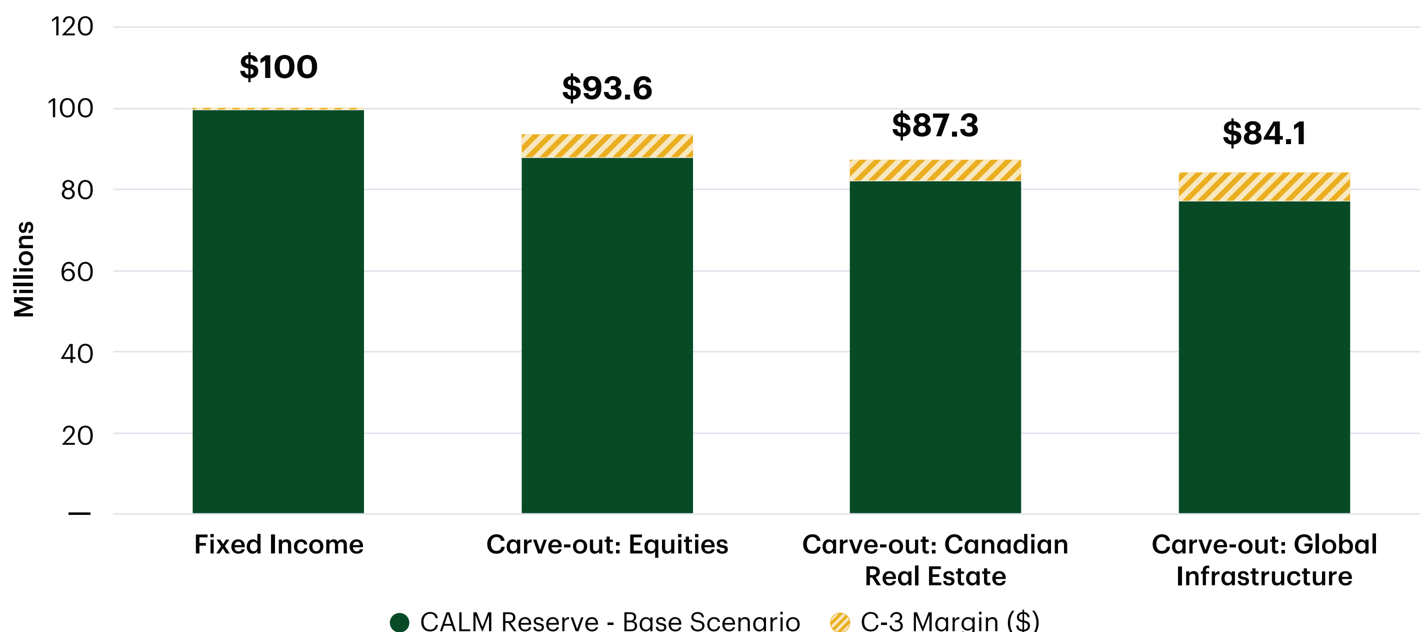
From a Canadian insurer's perspective, investing in assets with foreign currency exposure can result in additional market risk capital requirements and therefore it might be beneficial to consider multi-currency hedging. Currency forward contracts are used to help reduce or eliminate foreign currency exposure, lowering the market risk capital requirement.

Interest rate protection

Since the tail liability cash flows are backed with NFI assets that are generally considered not sensitive to interest rates, this results in some interest rate mismatch between the investment portfolio and the liability cash flows.

To align with the interest rate sensitivity of the liabilities more closely, insurers can look to compliment the carve-out with synthetic interest rate exposure. There are a variety of tools available to insurers in achieving this hedge, including leveraged bonds through repurchase agreements, interest rate swaps and total return swaps.

Comparison of CALM Reserve Between Fixed Income and Carve-out Strategies



Source: TD Asset Management Inc. Data as of December 31, 2021.

With the upcoming implementation of IFRS 17 (and IFRS 9), where liability valuation is de-coupled from the expected return on the investment portfolio, it is important to examine the tracking risk between assets and liabilities and its impact on financial statement volatility.

IFRS 17 Basis	Fixed Income	Carve-out: Equities	Carve-out: Canadian Real Estate	Carve-out: Global Infrastructure
Net Risk Premium[1]	70 bps	105 bps	145 bps	195 bps
Tracking Error	3.1%	4.2%	4.1%	4.2%
Sharpe Ratio[2]	0.22	0.25	0.35	0.47

Source: TD Asset Management Inc. Data as of December 31, 2021.
[1]Net risk premium = excess return over Government of Canada bond yield net of asset default provision and cost of capital.
[2]Sharpe ratio = net risk premium / tracking error.

The tracking error is slightly higher under the carve-out strategies but is offset by improved expected return over the fixed income portfolio, resulting in better return compensation per unit of tracking risk through an increased Sharpe ratio.

Growth

How TDAM can Help

Over the last 30 years, TDAM has built significant expertise in managing assets on behalf of insurance companies, offering product access and portfolio management services for insurance companies with one of the broadest solution suites in Canada. To help Canadian insurance companies navigate today's challenging investment environment and complex regulatory landscape, TDAM has numerous professionals with actuarial and investment expertise across multiple teams who can help provide insurance clients with unique insight and solve their most important challenges. ■

Connect with TD Asset Management

The information contained herein has been provided by TD Asset Management Inc. and is for information purposes only. The information has been drawn from sources believed to be reliable. Graphs and charts are used for illustrative purposes only and do not reflect future values or future performance of any investment. The information does not provide financial, legal, tax or investment advice. Particular investment, tax, or trading strategies should be evaluated relative to each individual's objectives and risk tolerance. Certain statements in this document may contain forward-looking statements ("FLS") that are predictive in nature and may include words such as "expects", "anticipates", "intends", "believes", "estimates" and similar forward-looking expressions or negative versions thereof. FLS are based on current expectations and projections about future general economic, political and relevant market factors, such as interest and foreign exchange rates, equity and capital markets, the general business environment, assuming no changes to tax or other laws or government regulation or catastrophic events. Expectations and projections about future events are inherently subject to risks and uncertainties, which may be unforeseeable. Such expectations and projections may be incorrect in the future. FLS are not guarantees of future performance. Actual events could differ materially from those expressed or implied in any FLS. A number of important factors including those factors set out above can contribute to these digressions. You should avoid placing any reliance on FLS. TD Asset Management Inc. is a wholly-owned subsidiary of The Toronto-Dominion Bank. ® The TD logo and other trademarks are the property of The Toronto-Dominion Bank or its subsidiaries.

(0522)