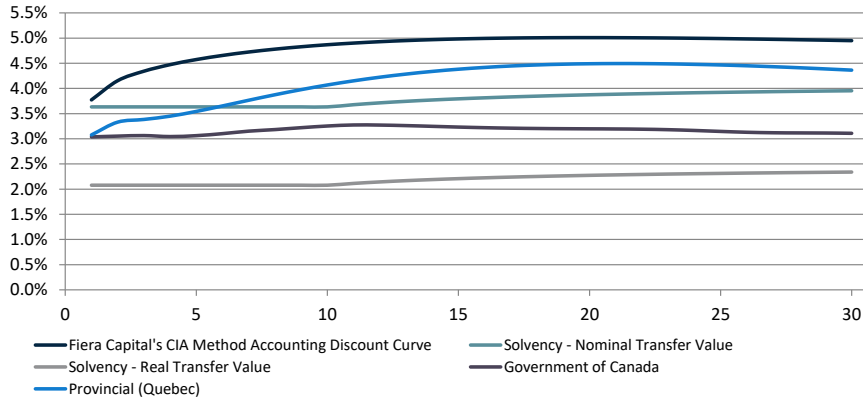
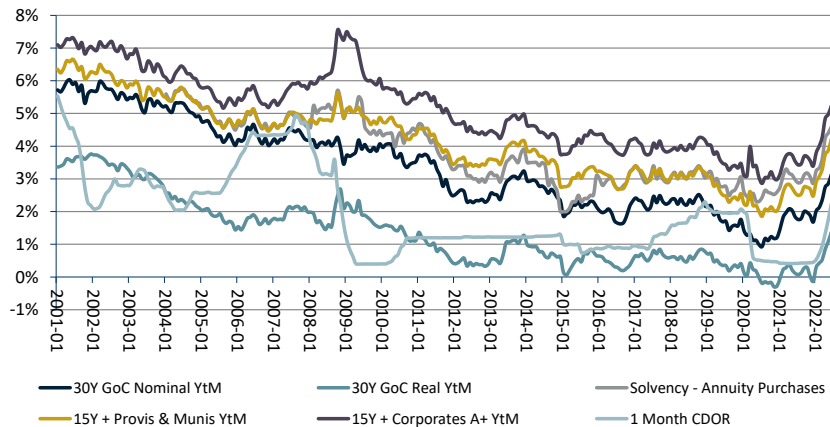


LDI Monitor - June 2022

Canadian Discount Curves as of 2022-06-30 *



Historical Interest Rates in Canada



Monthly LDI Highlights

During the month of June, long-term interest rates went up, driving liabilities down. Spreads increased by 8.2 bps on long-term provincial bonds (15 yr+) and decreased by 0.5 bps on long-term corporate bonds (15 yr+) over the month. Sample Canadian pension plan asset portfolios had negative returns (-5.43% to -4.34%) for the month. The sample accounting liability returns over the month ranged from -3.9% to -2.5%, while the solvency liability returns were between -1.2% and -0.2% depending on the plan's maturity.

As of 2022-06-30

Change from 2022-05-31

Change from 2021-12-31

Long-Term Market Interest Rates

		(bps)	(bps)
GoC 7 Year Nominal YtM	3.11%	35	183
GoC 30 Year Nominal YtM	3.13%	27	145
GoC 30 Year Real YtM	1.37%	28	149
30 Year Break-Even Inflation	1.76%	-1	-6
GoC 15 Year + YtM	3.16%	26	149
Provis 15 Year + YtM	4.21%	35	174
Corporate Rated A and over 15 Year + YtM	5.23%	26	184
Interest Rate Swap 20 Year	3.79%	31	164
Interest Rate Swap 30 Year	3.57%	30	148

Short Term Financing Rates

1 Month CDOR	2.23%	48	178
3 Month CDOR	2.76%	61	224

Pension Solvency Rates **

Transfer Value - Nominal 1-10 Year Fwd Rate	3.7%	10	140
Transfer Value - Nominal 10 Year + Fwd Rate	4.2%	0	80
Transfer Value - Real 1-10 Year Fwd Rate	1.9%	20	110
Transfer Value - Real 10 Year + Fwd Rate	2.5%	20	130
Annuity Purchase Rate	4.6%	29	173
CIA's Prescribed Annuity Purchase Spread	1.4%	0	20

Accounting Discount Rate (Based on the Fiera Capital's CIA Method Accounting Discount Rate Curve) ***

Young Pension Plan	5.06%	29	205
Steady Pension Plan	5.03%	30	207
Mature Pension Plan	4.99%	32	214

Canadian Pension Plan Performance Matrix ***

	(June 2022 YTD)	Young		Steady		Mature	
		60% Stocks, 40% Bonds		50% Stocks, 50% Bonds		40% Stocks, 60% Bonds	
Assets	(June 2022 YTD)	-5.43%	-13.97%	-4.89%	-13.63%	-4.34%	-13.29%
Accounting Liability @ Fiera Capital's CIA Curve		-3.9%	-26.8%	-3.2%	-22.5%	-2.5%	-17.6%
Solvency Liability @ CIA Curve		-0.2%	-15.6%	-0.9%	-14.3%	-1.2%	-12.1%
Economic Liability @ GoC Curve		-4.4%	-23.0%	-3.7%	-19.7%	-2.7%	-15.3%
Accounting Surplus		-1.5%	12.8%	-1.7%	8.8%	-1.9%	4.3%
Solvency Surplus		-5.2%	1.6%	-4.0%	0.6%	-3.1%	-1.2%
Economic Surplus		-1.0%	9.0%	-1.2%	6.1%	-1.6%	2.0%

Accounting Liability Performance Attribution ***

	(June 2022 YTD)	Young		Steady		Mature	
Change in Risk-Free Rates		-4.4%	-22.5%	-3.6%	-19.0%	-2.7%	-15.1%
Change in Credit Spreads		0.3%	-5.8%	0.2%	-4.9%	0.0%	-4.0%
Time Carry		0.3%	1.6%	0.2%	1.5%	0.2%	1.4%
Accounting Liability Total Return		-3.9%	-26.8%	-3.2%	-22.5%	-2.5%	-17.6%

Assumptions & Sources

(*) All discount curves shown are expressed as continuously compounded annual spot interest rates.

(**) Rates are based on the CIA methodology. The annuity purchase rate and the CIA prescribed spread are based on medium duration, liabilities as defined in the most recent CIA solvency valuation guidelines.

(***) The target duration of the accrued liabilities for the young, steady and mature pension plans are fixed to 17, 14 and 11 years respectively. Solvency, accounting and economic liabilities are assumed to discount expected nominal liability cash flows. All surplus return calculations assume a fully funded status at the beginning of the year. Asset allocation in equities is assumed to be evenly allocated amongst the S&P/TSX, S&P500 unhedged in CAD and MSCI-EAFE unhedged in CAD. Bank of America Merrill Lynch Canadian Broad Bond Market Index (CAN0) is used as the benchmark for fixed income. Sources: Fiera Capital, Bank of Canada, Bank of America Merrill Lynch, Bloomberg, MSCI-Barra, S&P and the Canadian Institute of Actuaries.