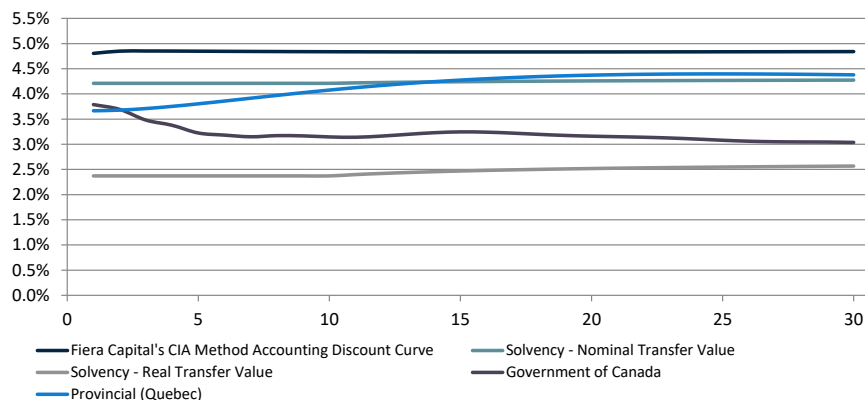
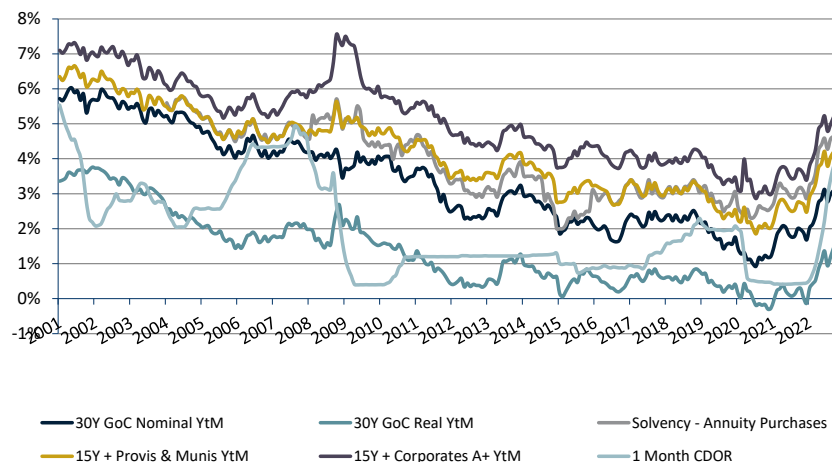


LDI Monitor - September 2022

Canadian Discount Curves as of 2022-09-29 *



Historical Interest Rates in Canada



Monthly LDI Highlights

During the month of September, long-term interest rates went up, driving liabilities down. Spreads increased by 1.8 bps on long-term provincial bonds (15 yr+) and increased by 7.9 bps on long-term corporate bonds (15 yr+) over the month. Sample Canadian pension plan asset portfolios had negative returns (-2.61% to -1.73%) for the month. The sample accounting liability returns over the month ranged from -2.1% to -1.1%, while the solvency liability returns were between -3.8% and -1.2% depending on the plan's maturity.

As of 2022-09-29 Change from 2022-08-31 Change from 2021-12-31

Long-Term Market Interest Rates			(bps)	(bps)
GoC 7 Year Nominal YtM	3.23%	7	195	
GoC 30 Year Nominal YtM	3.09%	11	141	
GoC 30 Year Real YtM	1.44%	26	157	
30 Year Break-Even Inflation	1.64%	-15	-17	
GoC 15 Year + YtM	3.13%	13	145	
Provis 15 Year + YtM	4.19%	15	171	
Corporate Rated A and over 15 Year + YtM	5.18%	21	179	
Interest Rate Swap 20 Year	3.77%	5	162	
Interest Rate Swap 30 Year	3.52%	5	144	
Short Term Financing Rates				
1 Month CDOR	3.76%	36	331	
3 Month CDOR	4.20%	37	368	
Pension Solvency Rates **				
Transfer Value - Nominal 1-10 Year Fwd Rate	4.3%	40	190	
Transfer Value - Nominal 10 Year + Fwd Rate	4.4%	20	100	
Transfer Value - Real 1-10 Year Fwd Rate	2.4%	30	150	
Transfer Value - Real 10 Year + Fwd Rate	2.7%	30	150	
Annuity Purchase Rate	4.6%	8	178	
CIA's Prescribed Annuity Purchase Spread	1.5%	0	30	
Accounting Discount Rate (Based on the Fiera Capital's CIA Method Accounting Discount Rate Curve) ***				
Young Pension Plan	4.96%	17	194	
Steady Pension Plan	4.96%	16	200	
Mature Pension Plan	4.96%	17	211	

Canadian Pension Plan Performance Matrix ***

Assets	Young		Steady		Mature	
	60% Stocks, 40% Bonds		50% Stocks, 50% Bonds		40% Stocks, 60% Bonds	
	(September 2022 YTD)					
Accounting Liability @ Fiera Capital's CIA Curve	-2.1%	-24.7%	-1.6%	-20.9%	-1.1%	-16.4%
Solvency Liability @ CIA Curve	-3.8%	-19.3%	-2.4%	-16.4%	-1.2%	-13.0%
Economic Liability @ GoC Curve	-1.1%	-21.7%	-0.8%	-18.6%	-0.6%	-14.6%
Accounting Surplus	-0.5%	10.7%	-0.6%	7.4%	-0.6%	3.4%
Solvency Surplus	1.2%	5.3%	0.2%	2.9%	-0.5%	0.0%
Economic Surplus	-1.5%	7.7%	-1.3%	5.1%	-1.1%	1.6%

Accounting Liability Performance Attribution ***

	Young		Steady		Mature	
	(September 2022 YTD)					
Change in Risk-Free Rates	-1.3%	-21.9%	-1.0%	-18.6%	-0.7%	-14.8%
Change in Credit Spreads	-0.9%	-5.2%	-0.7%	-4.6%	-0.5%	-3.7%
Time Carry	0.2%	2.4%	0.2%	2.2%	0.2%	2.2%
Accounting Liability Total Return	-2.1%	-24.7%	-1.6%	-20.9%	-1.1%	-16.4%

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.