

MONTRÉAL EXCHANGE

# LGB: Potential Strategies for Investors

## Introduction

As with the launch of Five-Year Government of Canada Bond Futures (CGF™) and Two-Year Government of Canada Bond Futures (CGZ™) in recent years, the launch of the 30-Year Government of Canada Bond Futures (LGB™) on the Montréal Exchange will create another valuable point on the Canadian derivatives yield curve for market participants. In this piece, we seek to identify potential uses for the new contract that we believe will be popular among portfolio managers; whether they manage real money portfolios or participate in pure, leveraged, speculative strategies.

## LGB as a Hedging Instrument

Many investors who don't normally participate in alpha generation or speculative strategies will nevertheless find opportunities to utilize the LGB contract.

### Long Bond Sector Hedging

For cash and speculative investors alike, perhaps the most obvious use for a 30-year bond contract is to substitute for the five or six bonds that make up the long end of the Canadian government bond yield curve. Investors that want to track the performance of this sector without using cash or who want to transact quickly and electronically could choose to be long LGB contracts rather than cash bonds in the long end.

To demonstrate how an investor might utilize the LGB contract in this manner, we used the market value outstanding of each bond to construct the market-value weighted benchmark portfolio of \$20 million market value that is shown in Figure 1. In that figure, each row is a Canadian bond of maturity greater than 20 years and the initial column shows the notional amount that the benchmark portfolio holds. To track this portfolio, we calculated regression coefficients between each security and the cheapest-to-deliver (CTD) bond for the LGBH22 contract, shown in bold. The resulting regression coefficients are shown in the column labelled "Beta" and multiplied by the bond DV01 to produce the futures equivalent DV01 in the final column of Figure 1.

FIGURE 1

PORTFOLIO NOTIONAL	ISSUER	COUPON	MATURITY	YIELD	DV01	BETA	TOTAL DV01	FUTURES EQUIVALENT DV01
2,215,000	CDA	4.000%	01-Jun-41	1.996%	19.110	0.80	4,233	3,366
2,609,000	CDA	3.500%	01-Dec-45	2.034%	22.038	1.12	5,750	6,441
2,385,000	CDA	2.750%	01-Dec-48	2.044%	22.501	1.06	5,366	5,694
<b>8,293,000</b>	<b>CDA</b>	<b>2.000%</b>	<b>01-Dec-51</b>	<b>2.051%</b>	<b>22.183</b>	<b>1.00</b>	<b>18,396</b>	<b>18,396</b>
1,440,000	CDA	1.750%	01-Dec-53	2.084%	22.167	0.95	3,192	3,040
1,080,000	CDA	2.750%	01-Dec-64	2.149%	31.062	1.01	3,355	3,391
<b>18,022,000</b>							<b>40,292</b>	<b>40,329</b>

Source: Bank of Canada, BMO Capital Markets' Fixed Income Sapphire database

After finding the futures equivalent DV01 for each bond, the sum of the DV01s can then be replicated with futures contracts. Figure 2 shows that just 81 contracts of LGBH22 would be required to replicate the expected DV01 of the \$20 million portfolio of long bonds with a single instrument. If the regression coefficients calculated in Figure 1 are similar in the future, the portfolio would be replicated in the simplest way possible with a single instrument exposure to changes in both the level of long-end interest rates and the slope of the curve within the long-end sector of the Canadian bond market.

**FIGURE 2**

CONTRACT CODE	CONTRACTS	CTD COUPON	CTD MATURITY	DV01/CONTRACT	TOTAL DV01
LGBH22	81	2.000%	01-Dec-51	49.504	40,098
					<b>40,098</b>

## Full Portfolio Hedging

Of course, with three other physical delivery bond futures contracts available in Canada, an investor doesn't have to limit himself to hedging only his long-end exposure. By additionally using the liquid 2-year (CGZ), 5-year (CGF) and 10-year (CGB™) GoC bond futures contracts, one can use the same methodology to create a portfolio of just four securities that tracks a Canadian bond portfolio of securities ranging in maturity from 2 to more than 30 years.

Figure 3 uses the same methodology as the example above to construct a \$100 million portfolio that includes all Canadian bonds maturing between early 2024 and 2064: the Canadian government bond universe, excluding the shortest maturity bonds. In each case, as in Figure 1, we calculate a regression coefficient to the appropriate futures contract CTD bond (shown in bold) and use that coefficient to calculate the interest rate sensitivity (DV01) required in each futures contract.

**FIGURE 3**

PORTFOLIO NOTIONAL	ISSUER	COUPON	MATURITY	YIELD	DV01	BETA	TOTAL DV01	FUTURES EQUIVALENT DV01
<b>592,000</b>	<b>CDA</b>	<b>0.750%</b>	<b>01-Feb-24</b>	<b>1.097%</b>	<b>2.159</b>	<b>0.98</b>	<b>128</b>	<b>125</b>
2,014,000	CDA	2.250%	01-Mar-24	1.088%	2.289	1.07	461	492
6,259,000	CDA	0.250%	01-Apr-24	1.125%	2.302	1.07	1,441	1,538
2,317,000	CDA	2.500%	01-Jun-24	1.140%	2.542	1.06	589	626
2,717,000	CDA	1.500%	01-Sep-24	1.185%	2.747	0.97	746	725
1,861,000	CDA	0.750%	01-Oct-24	1.225%	2.788	0.97	519	502
2,926,000	CDA	1.250%	01-Mar-25	1.275%	3.207	0.99	938	926
2,216,000	CDA	2.250%	01-Jun-25	1.292%	3.510	0.98	778	764
361,000	CDA	9.000%	01-Jun-25	1.302%	3.972	0.98	143	140
8,035,000	CDA	0.500%	01-Sep-25	1.349%	3.613	1.00	2,903	2,905
5,751,000	CDA	0.250%	01-Mar-26	1.416%	4.031	0.99	2,318	2,293
2,279,000	CDA	1.500%	01-Jun-26	1.421%	4.385	1.00	999	997
<b>3,890,000</b>	<b>CDA</b>	<b>1.000%</b>	<b>01-Sep-26</b>	<b>1.481%</b>	<b>4.547</b>	<b>1.00</b>	<b>1,769</b>	<b>1,769</b>
761,000	CDA	1.250%	01-Mar-27	1.546%	5.015	0.95	382	364
2,493,000	CDA	1.000%	01-Jun-27	1.508%	5.211	1.01	1,299	1,307
612,000	CDA	8.000%	01-Jun-27	1.515%	6.304	1.01	386	388
2,284,000	CDA	2.000%	01-Jun-28	1.543%	6.290	0.95	1,437	1,365
2,081,000	CDA	2.250%	01-Jun-29	1.556%	7.276	1.06	1,514	1,605
1,793,000	CDA	5.750%	01-Jun-29	1.568%	8.239	1.06	1,477	1,565
<b>7,477,000</b>	<b>CDA</b>	<b>1.250%</b>	<b>01-Jun-30</b>	<b>1.610%</b>	<b>7.818</b>	<b>1.00</b>	<b>5,846</b>	<b>5,846</b>
6,766,000	CDA	0.500%	01-Dec-30	1.661%	7.909	0.97	5,351	5,217
7,104,000	CDA	1.500%	01-Jun-31	1.697%	8.685	0.95	6,170	5,841
761,000	CDA	1.500%	01-Dec-31	1.747%	9.052	0.92	689	634
2,028,000	CDA	5.750%	01-Jun-33	1.804%	12.731	0.91	2,582	2,340
1,984,000	CDA	5.000%	01-Jun-37	1.914%	16.505	0.88	3,275	2,877
2,341,000	CDA	4.000%	01-Jun-41	1.996%	19.110	0.80	4,474	3,558
2,757,000	CDA	3.500%	01-Dec-45	2.034%	22.038	1.12	6,076	6,807
2,520,000	CDA	2.750%	01-Dec-48	2.044%	22.501	1.06	5,670	6,017

<b>8,765,000</b>	<b>CDA</b>	<b>2.000%</b>	<b>01-Dec-51</b>	<b>2.051%</b>	<b>22.183</b>	<b>1.00</b>	<b>19,443</b>	<b>19,443</b>
1,522,000	CDA	1.750%	01-Dec-53	2.084%	22.167	0.95	3,374	3,213
1,142,000	CDA	2.750%	01-Dec-64	2.149%	31.062	1.01	3,547	3,585
<b>96,409,000</b>							<b>86,724</b>	<b>85,772</b>

— 2-year sector    — 5-year sector    — 10-year sector    — 30-year sector

Source: Bank of Canada, BMO Capital Markets' Fixed Income Sapphire database

With the resulting coefficients, we calculate a tracking portfolio of futures contracts that should closely replicate the performance of the 31 bonds in the Canada government bond universe shown in Figure 3. The resulting portfolio of just four contracts is shown in Figure 4. The imposing transaction costs associated with buying and selling the entire universe of bonds, especially the off-the-run and old, high-coupon bonds, can be avoided, perhaps at the expense of some tracking error, by constructing or replacing the entire portfolio with just four bond futures securities.

**FIGURE 4**

CONTRACT CODE	CONTRACTS	CTD COUPON	CTD MATURITY	DV01/CONTRACT	TOTAL DV01
CGZH22	132	0.500%	01-Nov-23	2.099	2,771
CGFH22	256	1.000%	01-Sep-26	5.646	14,454
CGBH22	230	1.250%	01-Jun-30	11.259	25,896
LGBH22	86	2.000%	01-Dec-51	49.504	42,573
					<b>85,695</b>

## Duration Management / 10yf20y

Managers of cash portfolios may choose to use the LGB contract for duration management and would probably construct a trade very similar to a speculative trade on long term forward rates by doing so. For example, a manager that wishes to shorten the duration of their portfolio may choose to, in lieu of transacting in the cash market, sell LGB and buy CGB in amounts that reflect equal notional amounts of bonds. This trade would, of course, shorten the duration of the portfolio but roughly preserve the market value and, interestingly, is the identical trade construction a speculative manager might take to construct a trade that is short the 10-year forward 20-year (10yf20y or the 20-year interest rate starting in 10 years) interest rate.

We show a plot of the 10yf20y rate in Canada<sup>1</sup> over the past five years in Figure 5 and note that the rate, which should closely track market expectations of inflation, has risen already from a (non-pandemic panic) low of about 1.2% to about 2.3% at the end of November 2021. The duration reduction trade, or the identical speculation on 10yf20y, would only be profitable if inflation got "out of control" or long-term real interest rates rose significantly.

**FIGURE 5**

## Canada Bond 10yf20y Rate



Source: BMO Capital Markets' Fixed Income Sapphire database

<sup>1</sup> No observable 10yf20y yield exists. We derive the time series from constant maturity 10-year and 30-year Canada bond yields.

A trade construction to be short the 10yf20y rate or to shorten duration in a cash portfolio would replicate the sale of some notional of 30-year bonds to buy the same notional of 10-year bonds. Since the futures conversion factors for the CTD of the 10-year (CGB) contract and the 30-year (LGB) contract are very different, the futures trade is not a 1:1 construction but one that replicates the DV01 of a cash bond transaction. The construction is shown in Figure 6 where the investor would generate a short exposure to 10yf20y rates of \$25,000. The trade is mathematically identical, except for contract rounding, to selling \$17.2 million notional value of 30-year bonds and buying the same notional value of 10-year bonds.

**FIGURE 6**  
**Shorten Duration (Sell 30y to buy 10y)/10yf30y Rate**

POSITION	TICKER	CTD COUPON	CTD MATURITY	FUTURES CONVERSION FACTOR	DV01/CONTRACT	TOTAL DV01
120	CGBH22	1.250%	01-Jun-30	0.6944	11.3	13,594
-77	LGBH22	2.000%	01-Dec-51	0.4481	50.0	-38,472
						-24,878

## LGB for Alpha Generation

We anticipate ample opportunities for speculative investors to be involved in LGB to generate alpha in leveraged speculative portfolios as well.

### Provincial Spreads

A large supply of long maturity provincial bonds exists in Canada as the provinces have funded ever larger budget deficits in recent years. Until the launch of LGB, an investor had two options to hedge the directional interest rate exposure when trading long end provincial spreads: Canada bonds or, perhaps, a swap. Both markets have their drawbacks and liquidity isn't always what one would like it to be. Speculative investors and certain cash portfolios, could use the LGB contract to hedge the interest rate exposure of 30-year provincial<sup>2</sup> spread widening or tightening trades efficiently.

As an example, examine the 5-year history of the British Columbia 30-year benchmark bond spread in Figure 7. The recent history shows the spread has fluctuated between about 60 and 120 basis points, with the high prints only briefly observed as markets panicked about the emerging COVID-19 pandemic in March 2020. However, the figure appears to show that, despite large financial burdens placed on the provinces to fight the pandemic, BC long bond spreads have now tightened to historically low levels.

**FIGURE 7**  
**BC 30-year Spread**



Source: BMO Capital Markets' Fixed Income Sapphire database

An investor wishing to capitalize on a reversal to, say 80 basis points of spread, without taking directional interest rate exposure could always sell BC bonds and hedge with a purchase of Canada bonds having roughly the same maturity and interest rate sensitivity. Of course, long bond transactions sometimes have significant costs, especially if one needs to finance the trade by borrowing the cash to buy the Canada bonds in the repo market. While the costs of trading and financing the BC bond are unavoidable, an investor may be able to mitigate some of the costs of the DV01 hedge by using the LGB contract as shown in Figure 8. A purchase of just 41 LGB contracts would hedge a \$10 million short position in BC 2052 bonds and the hedge is self-financing, with no need to transact in the funding markets.

<sup>2</sup> We use a provincial bond example here but some investors may also utilize other credit products such as long term corporate bonds.

**FIGURE 8**  
**BC Spread Widener**

POSITION	INSTRUMENT	CTD/BOND COUPON	CTD/BOND MATURITY	FUTURES CONVERSION FACTOR	DV01	TOTAL DV01
41	LGBH22	2.000%	01-Dec-51	0.4481	49.964	20,485
-10,000,000	BC	2.950%	01-Jun-52	NA	20.704	-20,704
						-219

### 5-30 or 10-30 slope

Another popular interest rate strategy that can be enhanced with a liquid LGB contract is slope trades in 5-30 or 10-30<sup>3</sup>. Figure 9 shows the yield difference, or slope of the yield curve, between 10-year constant maturity and 30-year constant maturity bond yields since the start of 2017. The current slope of 30 basis points appears at roughly the midpoint of the range examined but investors may still hold a view on steepening or flattening; that view is probably closely related to their view on future inflation.

**FIGURE 9**  
**Canada 10-30 Slope**



Source: BMO Capital Markets' Fixed Income Sapphire database

In any event, an investor with a strong view that the slope of the 10-30 yield curve should be steeper could construct the trade shown in Figure 10. The transactions shown in the figure create a \$15,000 DV01 position to profit from an increase in the slope, or steepening of the curve, without transacting any cash bonds and without any requirement to raise cash or borrow bonds in the funding markets.

**FIGURE 10**  
**10-30 Slope**

POSITION	TICKER	CTD COUPON	CTD MATURITY	FUTURES CONVERSION FACTOR	DV01/CONTRACT	TOTAL DV01
132	CGBH22	1.250%	01-Jun-30	0.6944	11.3	14,954
-30	LGBH22	2.000%	01-Dec-51	0.4481	50.0	-14,989
						-35

Of course, the same methodology could be used to construct a 5-30 steepener which is shown in Figure 11. Here the investor benefits if the 5-30 slope increases and is somewhat indifferent to the 10-year rate, except as it affects 5 and 30-year rates and their relationship to one another. Naturally the trade is very similar and would be highly correlated to the trade construction shown in Figure 10 but the existence of several different points on the futures yield curve has now opened the possibility of 10-30, 5-30, 2-30, 2-5, 2-10, and 5-10 steepener and flattener trades for investors that are able to trade futures.

<sup>3</sup> 2-30 is also possible but fewer investors will probably be interested.

**FIGURE 11**  
**5-30 Slope**

POSITION	TICKER	CTD COUPON	CTD MATURITY	FUTURES CONVERSION FACTOR	DV01/CONTRACT	TOTAL DV01
263	CGFH22	1.000%	01-Sep-26	0.8053	5.7	14,990
-30	LGBH22	2.000%	01-Dec-51	0.4481	50.0	-14,989
						1

To facilitate the execution of such slope strategies, the Montréal Exchange (MX) offers the ability to trade Canadian bond futures curve spreads in a single transaction via the Inter-Group Strategies (IGS). These are listed strategies using a predefined ratio for each leg and are meant to reduce inherent execution risk. The ratios are standardized throughout the expiries and are set close to the corresponding DV01-neutral strategies. Figure 12 below presents the key slope strategies available for trading:

**FIGURE 12**  
**GoC bond futures curve spread available for trading**

SLOPE STRATEGY	RATIO	SYMBOL EXAMPLE
2-5 slope	3 : 1	3CGZ-1CGF
2-10 slope	6 : 1	6CGZ-1CGB
2-30 slope	25 : 1	25CGZ-1LGB
5-10 slope	2 : 1	2CGF-1CGB
5-30 slope	9 : 1	9CGF-1LGB
10-30 slope	9 : 2	9CGB-2LGB

### 5-10-30 50/50 & Regression Butterflies<sup>4</sup>

A butterfly trade in bonds or swaps seeks to capitalize on a change in the degree of curvature in the yield curve rather than the level or slope of the curve. Butterfly strategies with different weights for each bond can be constructed in myriad ways but a good starting point for investors is the 50/50 butterfly where an investor buys (sells) a bond with a medium term to maturity and sells (buys) 50% of the interest rate exposure in two other bonds with maturities shorter and longer than the medium-term bond. We plot the 5-10-30 butterfly history for the past five years in Figure 13.

**FIGURE 13**  
**50/50 5-10-30 Butterfly**



Source: BMO Capital Markets' Fixed Income Sapphire database

With the LGB contract, butterfly trades such as 5-10-30 can now be created entirely in futures contracts<sup>5</sup>. Figure 14 constructs the 50/50 weighted butterfly in Canada futures contracts for 5-10-30 using 5-year Canada bond futures (CGF), 10-year futures (CGB), and the new 30-year futures (LGB). The trade construction requires no participation in illiquid long-term swaps and is self-financing rather than requiring the manager or their firm to continually transact in the repo/reverse repo markets to borrow bonds or cash.

<sup>4</sup> Some managers refer to butterfly trades as bullet/barbell trades.

<sup>5</sup> For a more complete discussion of a butterfly strategy in futures contracts, refer to "Understanding 2-5-10 Butterfly Trades in Futures" published by Montréal Exchange in May 2021.

**FIGURE 14**  
**50/50 5-10-30 Butterfly**

POSITION	TICKER	CTD COUPON	CTD MATURITY	FUTURES CONVERSION FACTOR	DV01/ CONTRACT	TOTAL DV01	PERCENT WEIGHTS
-176	CGFH22	1.000%	01-Sep-26	0.8053	5.7	-10,031	-50.0%
177	CGBH22	1.250%	01-Jun-30	0.6944	11.3	20,052	100.0%
-20	LGBH22	2.000%	01-Dec-51	0.4481	50.0	-9,993	-49.8%
						28	0.1%

Other trade constructions can mitigate some of the inherent directionality embedded in butterfly trades, although this is less of a factor with a 5-10-30 butterfly than with a 2-5-10 butterfly, for example. The latter has a great deal of sensitivity to the front-end of the yield curve whereas the former is less influenced by Bank of Canada monetary policy expectations. However, Figure 15 shows that, using one year of yield history for the cheapest-to-deliver bonds, an investor could appropriately weight a 5-10-30 butterfly to better compensate for directionality by creating a butterfly with 41.5%/100%/57.3% weights in CGF, CGB, and LGB. The regression weighted butterfly, like the 50/50 butterfly, is DV01 neutral in total and should have less embedded directionality and sensitivity to slope than the 50/50 version.

**FIGURE 15**  
**Regression Weighted 5-10-30 Butterfly, 1-year** (Front-end to back-end slope: 0.711)

POSITION	TICKER	CTD COUPON	CTD MATURITY	FUTURES CONVERSION FACTOR	DV01/ CONTRACT	TOTAL DV01	PERCENT WEIGHTS
-146	CGFH22	1.000%	01-Sep-26	0.8053	5.7	-8,322	-41.5%
177	CGBH22	1.250%	01-Jun-30	0.6944	11.3	20,052	100.0%
-23	LGBH22	2.000%	01-Dec-51	0.4481	50.0	-11,492	-57.3%
						239	1.2%

Like the previous slope strategies, the MX offers the ability to trade Canadian bond futures butterflies in a single transaction via IGS functionality. Figure 16 presents the key butterfly strategies available for trading:

**FIGURE 16**  
**GoC bond futures butterflies available for trading**

BUTTERFLY STRATEGY	RATIO	SYMBOL EXAMPLE
2-5-10 butterfly	6 : 4 : 1	6CGZ-4CGF+1CGB
2-5-30 butterfly	27 : 18 : 1	27CGZ-18CGF+1LGB
2-10-30 slope	27 : 9 : 1	27CGZ-9CGB+1LGB
5-10-30 slope	9 : 9 : 1	9CGF-9CGB+1LGB

## Futures Basis

As with all futures contracts, investors will be able to use LGB contracts and futures basis<sup>6</sup> to capitalize on the relative difference in value between futures contracts and bonds. A long position in basis, which seeks to profit from an increase in the value of bonds relative to futures contracts, is shown in Figure 17. In this example, the investor buys \$20 million of the Canada 2051 bond, the cheapest-to-deliver bond for the LGBH22 contract and simultaneously sells 90 contracts in an interest-rate-neutral trade to buy the futures basis. The investor could be motivated by a relatively cheap bond or even by an expectation to exercise the embedded Wildcard option in the short futures position<sup>7</sup>.

<sup>6</sup> Futures basis is an example of a cash-and-carry arbitrage trade. In this case between the cheapest-to-deliver bond and the LGB contract.

<sup>7</sup> For a brief discussion of the Wildcard option in the LGB contract, refer to "[LGB: A Primer for CGB Users](#)" published by Montréal Exchange in November 2021.

**FIGURE 17**  
**Long Futures Basis**

POSITION	INSTRUMENT	CTD/BOND COUPON	CTD/BOND MATURITY	FUTURES CONVERSION FACTOR	DV01	TOTAL DV01
-90	LGBH22	2.000%	01-Dec-51	0.4481	49.964	-44,967
20,000,000	Canada	2.000%	01-Dec-51	NA	22.389	44,778
						-190

## Invoice Spread

Aggressive investors may choose to trade invoice spreads using LGB contracts. An invoice spread is the all-derivative equivalent of a swap spread trade where the bond is replaced by a physical delivery futures contract. The asset swap level<sup>8</sup> on the 30-year benchmark bond for the past two years is depicted in Figure 18 and has ranged between about -65 and +10 basis points, again with the extreme value observed only briefly in March 2020.

The spread has moved from the low of -65 to about -35 basis points at the end of November 2021 and an investor may choose to speculate that the spread will continue to move in this direction given the wind-down of the Bank of Canada asset purchase program and, perhaps, the beginning of a liquidation of some of the bonds acquired to avert economic disaster during the pandemic.

**FIGURE 18**  
**Canada 2.75% 2048 Swap Spread**



Source: BMO Capital Markets' Fixed Income Sapphire database

A Portfolio Manager with such a view could choose to sell bonds and receive fixed in swaps to construct their trade. To remain duration neutral, the PM would sell the same DV01 as they transact in the swap market. In our Figure 19 example, where we substitute LGB contracts for the bond sale with a swap notional of \$20 million CAD, that DV01 is just under \$43,000 and is matched with a sale of just 86 LGBH22 contracts since the security DV01 of the contract is so much higher than that of the swap. The investor would benefit by approximately \$43,000 for each basis point that the spread tightens, or moves higher to a less negative value, in Figure 19.

**FIGURE 19**  
**Invoice Spread/Swap Spread Tightener**

POSITION	INSTRUMENT	CTD/BOND COUPON	CTD/SWAP MATURITY	FUTURES CONVERSION FACTOR	DV01	TOTAL DV01
-86	LGBH22	2.000%	01-Dec-51	0.4481	49.964	-42,969
20,000,000	IR Swap	2.350%	01-Dec-51	NA	21.471	42,943
						-26

<sup>8</sup> A yield/yield asset swap in this case. The difference between the yield of the bond in the cash market and the yield of a conventional vanilla swap that expires on the same date as the bond matures.

# Other Possibilities

## Intraday Hedging

As we argued when the 2-year (CGZ) bond contract was launched, the fast and easy execution of futures contracts relative to bonds, and especially relative to swaps, makes them an ideal instrument for intraday hedging. For example, imagine a Portfolio Manager knows that he or she will receive a cash inflow to their portfolio that needs to be invested today and that some portion of that cash will be allocated to the long end, perhaps to provincial bonds. However, the security selection process can sometimes be a slow one, so the cash needs to be “parked” temporarily, in a correlated instrument, so that it does not cause underperformance if market developments occur before a suitable security is selected for the portfolio. As with CGZ, CGF and CGB, LGB can be utilized by fixed income managers to immunize cash positions against market movements while decisions are being made. A similar argument can be made for bank dealing desks that are making markets in long term Canadian swaps<sup>9</sup> for speculators or corporate clients.

## “True” Mortgage Hedging

A typical Canadian mortgage with a 30-year amortization and 5-year reset is difficult to hedge as both the mortgagee and mortgagor have interest rate exposure to forward rates rather than just to spot rates. For example, the bank writing the mortgage should hedge 5-year spot rates, 5yf5y rates<sup>10</sup>, 10yf5y rates, 15yf5y rates, etc. to perfectly hedge. Banks are efficient hedgers, of course, but have had to rely on swaps or mismatched maturities such as CGB in the past to hedge this exposure and hedging may not have even been possible for some smaller entities. With the LGB contract, a better hedge to mortgage exposure could be created more cheaply for almost any size entity. One could attain exposure, for example, to 5-year spot using CGF, 5yf5y using a combination of CGF and CGB contracts, and 10yf20y using CGB and LGB for a better mortgage exposure hedge than could be attained without the LGB contract.

## Cross currency

The LGB contract can also be utilized to trade the spread between the long end of the Canada yield curve and that of other countries, such as the USA. This strategy seeks to capitalize on relative changes in the interest rates spread of the two countries and can easily be created, much like an investor can buy or sell the 10-year CGB contract against an equivalent foreign 10-year bond futures. Note that in order to implement this strategy, an investor must take into consideration the proper exchange rate when determining the number of contracts to trade using the DV01 neutral approach.

Investors interested in this trade should be careful of the very long-term nature of the LGB contract and any differences in embedded option value, of course, and choose their trade construction carefully.

## Directional Speculation/Algorithms

The introduction of a liquid LGB contract opens Canada to international participation in long maturity bonds as this segment of the cash bond market has been historically dominated by domestic investors. Many international investors have been dissuaded from participating due to onerous costs associated with financing bond long or short positions in what is viewed as a niche market relative to much larger bond markets in other developed nations.

When trading the LGB contract, there is no need to fund trades in Canadian dollars or to borrow bonds from Canadian dealers with whom these clients may not even have trading relationships. Eventually, LGB may be incorporated into algorithmic trade models or utilized as a macro trading instrument by international clients who have avoided the Canadian market in the past. New entrants to the Canadian long bond market via LGB may benefit from the brief appendix describing the long maturity bond market in Canada.

# Appendix: An Odd Characteristic of the Long End

If the launch of LGB contracts is an investor’s first dalliance with the Canadian long end, we would be remiss if we failed to mention that long term bond yields sometimes defy logic in Canada.

In the past we have cited the out-of-vogue Liquidity Preference Theory of interest rates to explain why bonds with long maturity dates trade at lower yields than one would think, and lower yields than our nearest comparator country, the USA. Under this theory, large domestic institutions with conservative holdings (i.e., a lot of government bonds that are bought and held for very long time periods) such as pension and insurance companies value long term bonds for their immunization properties against long term liabilities. These institutions can, and almost always do, buy large portions of each Canada long term maturity bond not for the yield, but for the follow-on effects that holding assets with durations that match, or almost match, the duration of their liabilities, has on the volatility of their funding ratios. This can make some institutions price insensitive when buying certain bonds and drive yields to levels so low that long term Canada bonds are no longer a sensible buy and hold investment for other investors<sup>11</sup>.

A result of the above theory is that Canadian 30-year yields are often lower than those of the United States and 10-30 slope is almost always flatter than that of the US, sometimes drastically so. For instance, Figure 20 shows the level of 10-30 slope in both countries. In fact, 10-30 in Canada has sometimes been 60-80 basis points flatter than the same yield curve measure in the US and has rarely risen above 70 basis points while the latter has risen well above 100 basis points for long periods of time.

<sup>9</sup> Or corporate bonds, provincial bonds, etc.

<sup>10</sup> 5yf5y is the 5-year forward 5-year rate or the 5-year interest rate starting 5-years from today.

<sup>11</sup> For more, refer to [“Long Maturity Canada Yields Are Not For You”](#) published by Montréal Exchange in October 2018.

**FIGURE 20**  
**10-30 Slope, Canada & US Constant Maturity Bonds**



Source: BMO Capital Markets' Fixed Income Sapphire database

Investors that are new to the Canadian long end bond market may need to recalibrate their expectations to account for this long-term anomaly in the market. We know of no reason the anomaly would revert anytime in the foreseeable future.



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## For more information

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