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CGF Five-Year Government of Canada Bond Futures

CGB Ten-Year Government of Canada Bond Futures

H19 - M19 Roll Update

Quarterly Roll Summary

There are a number of good trading opportunities on the horizon that can be implemented using futures contracts but few that are a direct result of this quarterly roll. This quarter, there will be no change in the delivery basket for the CGF or CGB contracts. The record open interest on CGF could lead to some relative value opportunities which active traders should monitor, although we suspect the roll in both contracts will be uneventful.

Significant roll activity in both CGF and CGB contracts will likely begin on February 22nd which, as each year at this time, seems early due to the short month. Long positions that can't risk taking delivery must complete their roll or close their position by February 27th. Long positions in CGB should note that early delivery is a near certainty due to the negative carry for a hedged short CGBH19 position.

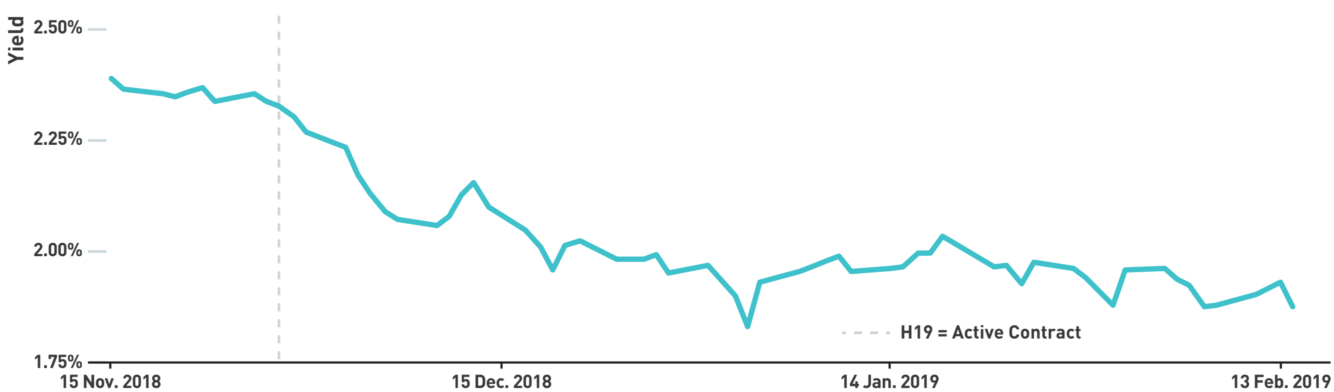
Positioning

Recall that the Z18 contract cycle was very poor for trend following speculative strategies with several severe reversals that likely caused a de-risking in these strategies. The H19 contract would have been significantly better, although one wonders if these firms were allocating full risk given the painful experience of the Z18 contracts.

Figure 1 charts the 10-year bond yield in Canada during the life of the H19 contract and shows the clear trend towards lower rates during the contract life. The vertical grey line is the date on which H19 became the active contract.

FIGURE 1

Canada 10y Bond Yield, past 3 months

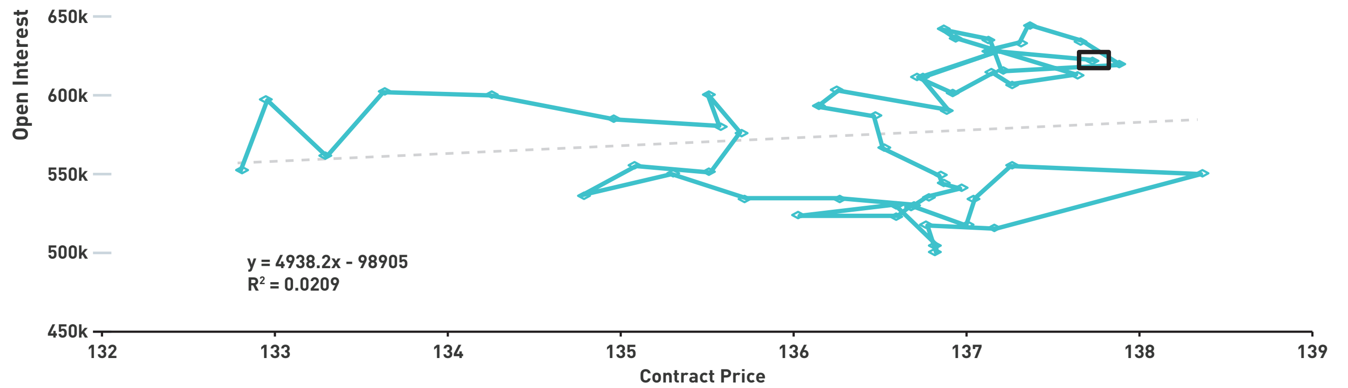


Source: BMO Capital Marketsi Fixed Income Sapphire database

Correlation between price and open interest was insubstantial for the CGB contract this quarter, which has been relatively uncommon lately. Normally one would expect open interest to rise during a price trend such as occurred in December but, as can be seen below in Figure 2, open interest in the CGB contract initially fell while the contract price rose rapidly from 133 to 138, pointing to speculative shorts buying to close their positions. That changed almost exactly at the turn of the year when yields reached a local low and, during the most recent six weeks, open interest rose steadily while the contract price remained in a 136.25-138 range. Given the low overall correlation to prices, little can be said about the likely positioning of speculative accounts in the H19 contract at this time.

FIGURE 2

CGBH19 Price vs Open Interest

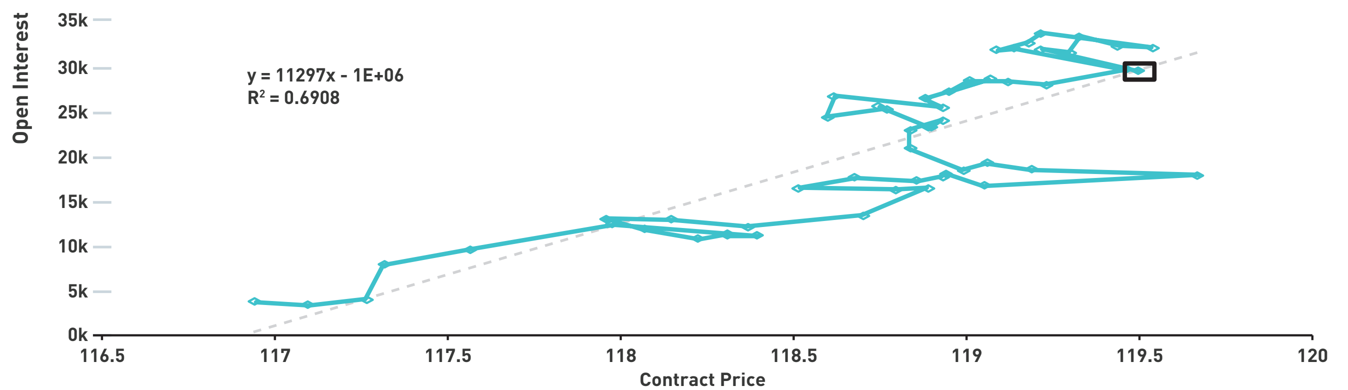


Source: Montréal Exchange

While Figure 3 shows an extremely strong correlation between open interest and contract price for the CGF contract in December 2018, we are inclined to reject this correlation as spurious and are hesitant to draw any conclusions about speculative positioning from it. The Montréal Exchange launched an extensive new liquidity program for CGF in December 2018 which has resulted in nearly a seven-fold increase in open interest. The fall in interest rates at the same time seems less causal than the extensive push to raise awareness of the CGF contract via client discussions, new publications and launch events, particularly given that this contract has not been a tool utilized by trend following strategies in the past.

FIGURE 3

CGFH19 Price vs Open Interest



Source: Montréal Exchange

No Switch Potential

Last quarter we concluded that almost no potential for a switch of cheapest-to-deliver (CTD) bond existed in both CGF and CGB and that, therefore, the options embedded in the contracts should be nearly worthless with the exception of the timing option. The same is true again this quarter as both contracts are even farther away from a CTD switch given the fall in yields and flattening of the curve in the 5-year area.

Looking ahead, Figure 4 and Figure 5 show the yield/slope combinations that would result in a CTD switch for the CGFM19 and CGBM19 contracts. A switch in the deliverable basket for CGF is incredibly remote given the required 175 basis point selloff plus 25 basis point curve steepening between the yield of the Sep23 and the Mar24. Similarly, a 50 basis point rise in 10-year yields and 23 basis point steepening, which would drive the Jun28 to CTD status for the CGBM19 contract, is unlikely to occur in the next 90 days.

The timing option[1] on the CGB (but not the CGF) - the option to deliver early and thus avoid the negative carry on a short futures position hedged with a long CTD bond position – is again the only embedded option of any value this quarter.

FIGURE 4

CGF Matrix

	Canada Sep 23 Yield															
SLOPE	0.80%	1.05%	1.30%	1.55%	**1.80%**	2.05%	2.30%	2.55%	2.80%	3.05%	3.30%	3.55%	3.80%	4.05%	4.30%	4.55%
-4.0	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-3.1	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-2.3	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-1.4	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-0.5	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
0.3	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**
5.3	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
10.2	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
15.1	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24
20.1	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24
25.0	Sep23	Sep23	Sep23	Sep23	**Sep23**	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24	Mar24	Mar24

FIGURE 5

CGB Matrix

	Canada Jun 27 Yield															
SLOPE	0.88%	1.13%	1.38%	1.63%	**1.88%**	2.13%	2.38%	2.63%	2.88%	3.13%	3.38%	3.63%	3.88%	4.13%	4.38%	4.63%
-5.0	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-3.6	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-2.3	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-0.9	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-0.4	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
1.8	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**
6.4	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
11.1	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28
15.7	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28
20.4	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28
25.0	Jun27	Jun27	Jun27	Jun27	**Jun27**	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28

1. For a full discussion of the embedded options in physical delivery bond futures in Canada, please refer to **Embedded Options in CGF and CGB Futures** published in November 2018.

Relative Value

With no change of deliverables for the CGF or CGB contract this quarter, we would expect the contract to have little effect on relative value between close neighbour bonds.

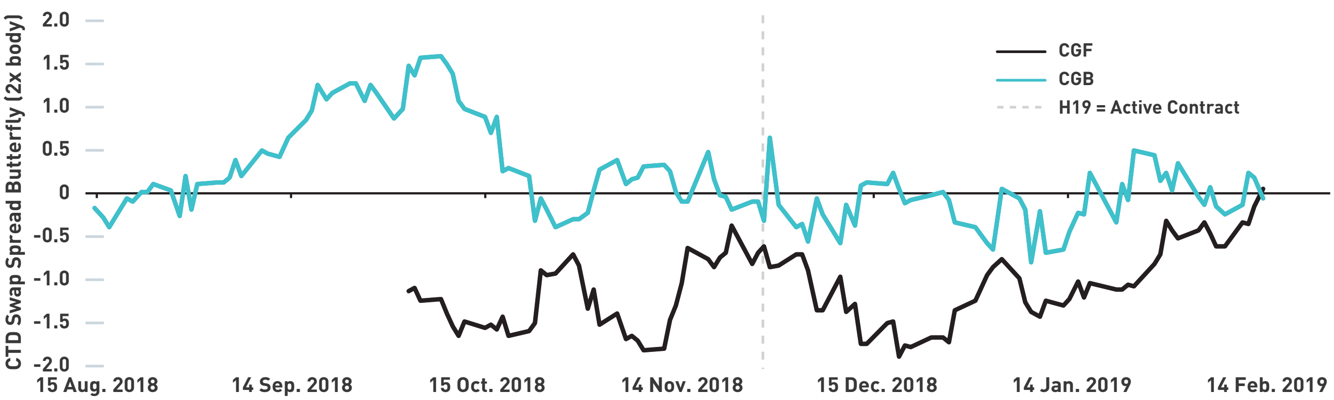
Figure 6 plots the swap spread butterfly[2] for the CTD of both the CGF and CGB contracts this quarter. A move lower on the chart indicates that the CTD became more rich relative to its closest neighbour bonds while a move towards the top of the chart indicates the CTD became cheaper relative to neighbour bonds.

The CTD for the CGBH19 contract, the Jun27, has remained in a close range of just over 1 basis point versus neighbour bonds when measured via swap spread butterfly; not a surprise given the quite steady open interest, lack of correlation to rates this quarter, and identical delivery basket for the M19 contract.

At first glance, there appears to be a story in the large cheapening of the Sep23s, CTD for the March CGF contract, versus neighbour bonds since mid to late-December. A move from nearly -2 to 0 on such a narrow measure of relative value is abnormal for this contract. Upon closer inspection, the move in relative value is solely one of richening the longer maturity wing in this measure rather than cheapening of the CTD for the CGF contract. On February 14th, the Mar24 took 5-year benchmark status in Canada, an event that normally results in a premium for the bond or, at the very least, the elimination of any discount due to continued issuance.

FIGURE 6

H19 CTD Swap Spread Butterflies



Source: BMO Capital Markets[i] Fixed Income Sapphire database

Key Metrics & Expectations

The Key Metrics that may interest a Portfolio Manager (PM) with a position in either CGFH19 or CGBH19 who is contemplating his/her roll strategy this week are shown in Figure 7 and Figure 9. We used prices on February 14th, and CGBM19 had already seen a few trades in the new contract.

CGFH19 to CGFM19

We believe the CGF roll will receive particular attention this quarter due to the much larger open interest[3] that has been observed in the contract recently, although plenty of bonds are available to cover delivery, if needed. Given the larger open interest, the roll to CGFM19 will be widely watched as a bellwether of success for the new liquidity program.
As such, we find ourselves of two conflicting views; simultaneously hoping speculators can identify opportunities to generate alpha during the roll period while also hoping the roll is uneventful with no arbitrage opportunities.

2. A common measure of relative value, a swap spread butterfly is constructed by calculating the spread to swaps for the closest similar bonds with maturities before and after the CTD. One then multiplies the spread of the CTD by two and subtracts the spread of the nearest comparator bonds to construct the butterfly. A lower value indicates the CTD (or body of the butterfly) is rich relative to its nearest neighbour (or wing) bonds.
3. Open interest peaked at over 33,000 contracts for CGFH19 versus just over 4,500 contracts for CGFZ18.

FIGURE 7

CGF Key Metrics

14-Feb-2019	FRONT (Mar19)	BACK (Jun19)	Back - Front
Closing Price	119.418	118.300	
Cheapest-to-Deliver (CTD)	CAN 2.000% Sep 2023	CAN 2.000% Sep 2023	
Delivery Years	4.4	4.2	-0.2
Conversion Factor	0.8443	0.8518	
CTD Clean Price	100.8540	100.8540	
CTD Yield	1.803%	1.803%	0.000%
Gross Basis	0.030	0.086	
Net Basis	0.006	0.008	0.002
Implied Repo	1.78%	1.77%	-0.02%
DV01/100 of CTD	4.4	4.4	0.0
Open Interest	29,887	0	
CTD Outstanding (millions)	12,000	12,000	0
Multiple of Outstanding	0.2x	0.2x	0.0x

Source: CanDeal, Montréal Exchange, Bank of Canada, TD Securities

Note in Figure 7 that the implied repo for the front contract is nearly identical to the overnight rate of 1.75% but that there is a March 6th Bank of Canada (BoC) fixed announcement date for monetary policy. This implies that the contract is priced to reflect no change to Bank of Canada policy at the March meeting. In fact, the implied repo in the same figure for the M19 contract is almost identical despite additional BoC fixed announcement dates in April and late May, which reflects the general market view that the BoC is now on hold for at least the next 3 months.

Since the options have essentially no value and the expectations for BoC target rate changes are almost zero[4], we can calculate in Figure 8 a table of roll prices between the H19 and M19 CGF contract and what those prices would imply for the implied repo on CGFM19. Given the "Bank on hold" view of the market at present, we would consider roll levels outside of a +/- 5 basis points range from the implied repo of the H19 contract (i.e. outside of -1.13 to -1.09 roll price) as a price anomaly. Active traders will monitor the intraday price of the CGF roll searching for opportunities to provide liquidity at profitable levels.

FIGURE 8

Roll Price*	-1.19	-1.18	-1.17	-1.16	-1.15	-1.14	-1.13	-1.12	-1.11	-1.10	-1.09	-1.08	-1.07	-1.06	-1.05	-1.04	-1.03	-1.02
IR Change (bps)**	-19	-16	-14	-12	-9	-7	-5	-2	0	+2	+5	+7	+9	+12	+14	+16	+19	+21

*Sell CGFH19, buy CGFM19 **Change in CGFM19 implied repo from CGFH19 implied repo of 1.78% using Feb14 pricing

Given the larger open interest this quarter and without any insight into how speculative accounts are positioned, we would expect all positions in CGF to test the roll market earlier than has historically been normal. However, both long and short positions can take some assurance in an unlikely early delivery given the positive carry for a hedged short position in CGFH19 during the delivery period.

4. Corroborated by the OIS market and MX's **BAX implied rate movements and probabilities tool** at the time of writing.

CGBH19 to CGBM19

CGB will likely have an uneventful roll period in February as the annual change to the deliverable basket won't occur until next quarter. CGB open interest is again high enough that it would require over four times as much notional of the Jun27 bond that exists to fulfill delivery on all outstanding CGBH19 contracts – not a problem since only a tiny fraction of contracts goes to the delivery period. We expect a busy roll period but few relative value opportunities to arise.

This quarter we have adjusted our CGB Key Metrics table[5] (Figure 9) to reflect the fact that almost no short positions will choose to delay delivery to the last delivery date due to the negative carry of the position. That's consistent with our expectation in November which was borne out when just 0.3% of the outstanding contracts going into the roll period were carried past the first delivery date.

On February 14th implied repo for H19 to first delivery was 1.43% (H19 was just over a penny cheap) and for M19 1.74% (roughly fair value). Given existing pricing and lacking any reliable insight into accumulated positions by speculative accounts, short positions should roll as soon as possible while long positions in CGBH19, unless they are comfortable with early delivery, should not risk the delivery period this quarter. The combination of the two should result in roll activity starting early and proceeding quickly with both sides incentivized to close their H19 position.

FIGURE 9

CGB Key Metrics

14-Feb-2019	FRONT (Mar19)	BACK (Jun19)	Back - Front
Closing Price	137.503	136.203	
Cheapest-to-Deliver (CTD)	CAN 1.000% Jun 2027	CAN 1.000% Jun 2027	
Delivery Years (1st delivery)	8.3	8.0	-0.3
Conversion Factor	0.6783	0.6860	
CTD Clean Price	93.2590	93.2590	
CTD Yield	1.883%	1.883%	0.000%
Gross Basis	-0.009	-0.176	
Net Basis (1st delivery)	0.008	0.005	-0.003
Implied Repo (1st delivery)	1.43%	1.74%	0.30%
DV01/100 of CTD	7.3	7.3	0.0
Open Interest	628,722	183	
CTD Outstanding (millions)	15,000	15,000	0
Multiple of Outstanding	4.1x	4.1x	0.0x

Source: CanDeal, Montréal Exchange, Bank of Canada, TD Securities

5. Specifically, the Delivery Years, Net Basis, and Implied Repo rows for both the Front and Back contracts now reflect those values to the first delivery date rather than the more normal last delivery date.

Opportunities Beyond the Short-Term

While the H19 to M19 roll is likely to be uneventful given the unchanged delivery baskets, market opportunities in the medium-term look more promising.

- Jun29 will become the benchmark 10-year bond within months[6] which usually causes it to trade at a premium. Active PMs could buy the 29s and hedge in CGBM19 in anticipation.
- The CGBM19 to U19 roll in May will be interesting given the annual change of cheapest-to-deliver in the basket. Jun28 will be the CTD for CGBU19 which means, among other things, that negative carry for long basis trades will probably disappear[7] and, along with it, the so-called "negative basis."[8]
- CGF open interest will continue to grow. At some point trend following strategies will embrace the product and/or it will attract serious hedging activity at the 5-year point which may have significant rich/cheap implications for the contract.

6. The benchmark change happens unpredictably, usually when dealer swap desks are ready, so the exact date can't be known in advance.
7. Unless repo rates rise by over 75 basis points before September 2019.
8. Gross basis will again be quoted as a positive number by dealers rather than a negative, reversing the perhaps surprising move to a negative CGB gross basis level that began in summer 2018.

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