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CGF Five-Year Government of Canada Bond Futures

CGB Ten-Year Government of Canada Bond Futures

Z18 - H19 Roll Update

Quarterly Roll Summary

Significant roll activity in both CGF® and CGB® contracts will begin on, or even a day before, November26th. Long positions that can't risk delivery must complete their roll or close their position by November 29th. As with prior cycles with a major U.S. or Canadian holiday near the roll period, we expect modest roll activity to appear early as some managers adjust their positions prior to the Thanksgiving holiday.

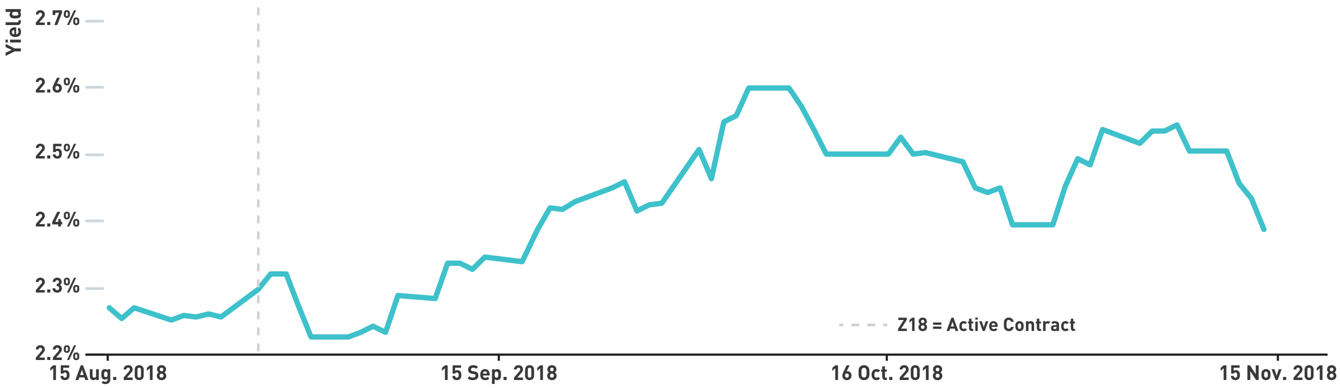
This quarter, there will be no change in the delivery basket for the heavily traded CGB contract but the basket for the less sizeable CGF contract will change as the 1.75% Mar23 becomes ineligible and the 2.25% Mar24 becomes eligible[1]. Given the relatively small open interest in CGF and the unchanged delivery basket for CGB, this roll period will likely be orderly and uneventful.

Positioning

The Z18 contract cycle was not a good period for trend following speculative strategies, as evidenced by the disappointing returns being reported by most of these funds for October. Figure 1 charts the 10-year bond yield in Canada during the life of the Z18 contract and shows more than four painful reversals for trend following interest rate strategies. When attempting to gauge the positioning of speculative accounts, one should recall that almost all such strategies scale down overall risk taking as losses mount, making any estimates of their pre-roll positioning less useful than usual.

FIGURE 1

Canada 10y Bond Yield



Source: BMO Capital Marketsi Fixed Income Sapphire database

1. The 2024 doesn't have enough size yet to be included in the deliverable basket but it is anticipated to reach eligible size before the delivery period for H19 contracts. The remainder of this update treats the inclusion of Mar24 in the CGFH19 deliverable basket as a certainty

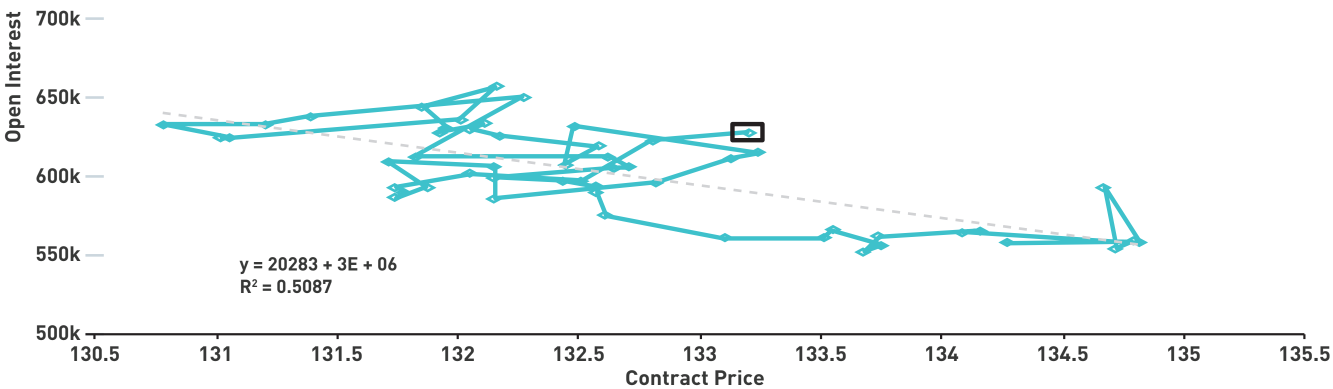
Correlation between price and open interest was insubstantial for CGF this quarter, as is common for that contract. Users of CGF do not appear to add to or reduce their allocations to futures in response to changes in interest rates, with only a few exceptions over the past few years.

Unlike CGF, CGB often exhibits significant correlation between the contract price and open interest. Contract price and open interest exhibited an r-squared of 0.51 this quarter (Figure 2) which, although reasonably significant, is less than in previous contract cycles, probably due to the numerous reversals observed and subsequent reduction in overall risk taking by speculative accounts. We can conclude with only modest confidence that new short positions were being added over the contract cycle as prices declined. Some of those short positions still exist and, being speculative and short-term in nature, are typically not interested in delivery. As such, we conclude that speculative positions are net short contracts that will prefer to be rolled or closed well in advance of the delivery period.

However, a strong argument exists for long positions to be more anxious about entering the delivery period this quarter since the CGB contract[2] is pricing for early delivery due to the negative carry associated with a long basis position in CGB. Long positions that would normally be content to enter the delivery period assuming they will not be delivered bonds early, should be aware that early delivery is not only plausible but probable for the CGBZ18 contract.

FIGURE 2

CGBZ18 Price vs Open Interest



Source: Montréal Exchange

Switch Potential?

There is really no risk[3] or potential for a switch in the cheapest-to-deliver (CTD) bond in both CGF and CGB this cycle. Figure 3 shows the CTD distribution at final delivery for the CGFH19 contract while Figure 4 shows the same calculations for the CGBH19. In each figure, current yields for the CTD and the slope between the CTD and the other bond expected to be in the delivery basket are shown in bold. It would take a giant 150 basis point selloff combined with 23 basis points of steepening to push the Mar24 bond to CTD status for the CGF contract and an implausible large bear steepening to push Jun28s to CTD in the CGB contract.

Given the low probability of a CTD switch in each contract, the only embedded option in either of these contracts that has any value is the timing option[4]; the option to deliver early and thus avoid negative carry on a futures short combined with long CTD bond position.

2. Only the CGB contract, not the CGF. The CGF contract is still unlikely to be delivered early given current market conditions.
3. Of course, it is possible but it would take a vastly larger selloff and steepening than has occurred in the past 15 years to accomplish such a feat.
4. For a full discussion of the embedded options in physical delivery bond futures in Canada, please refer to "Embedded Options in CGF and CGB" published in November 2018.

FIGURE 3

CGF Matrix

	Canada Sep 23 Yield															
SLOPE	1.33%	1.58%	1.83%	2.08%	2.33%	2.58%	2.83%	3.08%	3.33%	3.58%	3.83%	4.08%	4.33%	4.58%	4.83%	5.08%
-4.0	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-2.8	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23
-1.5	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	Mar24
0.9	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24
2.1	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Sep23**	**Mar24**
6.7	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24
11.3	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24
15.9	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24	Mar24
20.4	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24	Mar24	Mar24
25.0	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Sep23	Mar24	Mar24	Mar24	Mar24	Mar24	Mar24

Source: Montréal Exchange, CanDeal

FIGURE 4

CGB Matrix

	Canada Jun 27 Yield															
SLOPE	1.39%	1.64%	1.89%	2.14%	2.39%	2.64%	2.89%	3.14%	3.39%	3.64%	3.89%	4.14%	4.39%	4.64%	4.89%	5.14%
-5.0	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-3.8	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-2.7	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27
-1.5	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
0.8	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**	**Jun27**
5.6	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28
10.5	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28
15.3	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28
20.2	Jun27	Jun27	Jun27	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28
25.0	Jun27	Jun27	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28	Jun28

Source: Montréal Exchange, CanDeal

Relative Value

The story of CTD relative value vis-à-vis neighbour bonds this quarter is less engaging than in previous quarters. With no change of deliverables for the high open interest CGB contract and a smaller open interest in CGF where the basket will see some change, the CTD hasn't been a predictable driver of relative value in the basket for Z18 contracts.

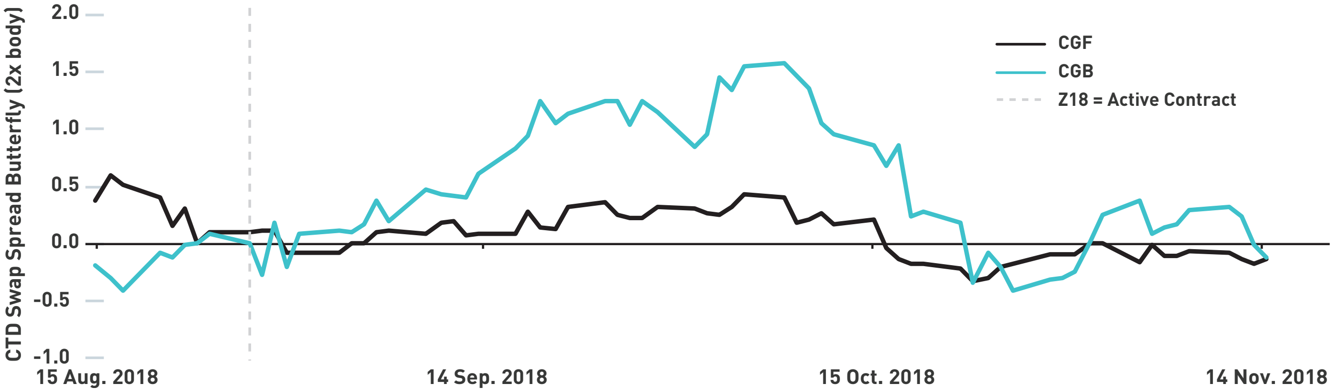
Figure 5 plots the swap spread butterfly[5] for the CTD of both the CGF and CGB contracts this quarter. A move lower on the chart indicates that the CTD became more rich relative to its closest neighbour bonds while a move towards the top of the chart indicates the opposite. The vertical grey line is the date on which Z18 became the active contract.

One interesting observation is the stability of the Mar23s, the CTD for the CGFZ18 contract, relative to its neighbours. That swap spread butterfly closed in a range of just over half of one basis point for the entire life of the Z18 contract, which is quite unusual.

5. 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.

FIGURE 5

Z18 CTD Swap Spread Butterflies

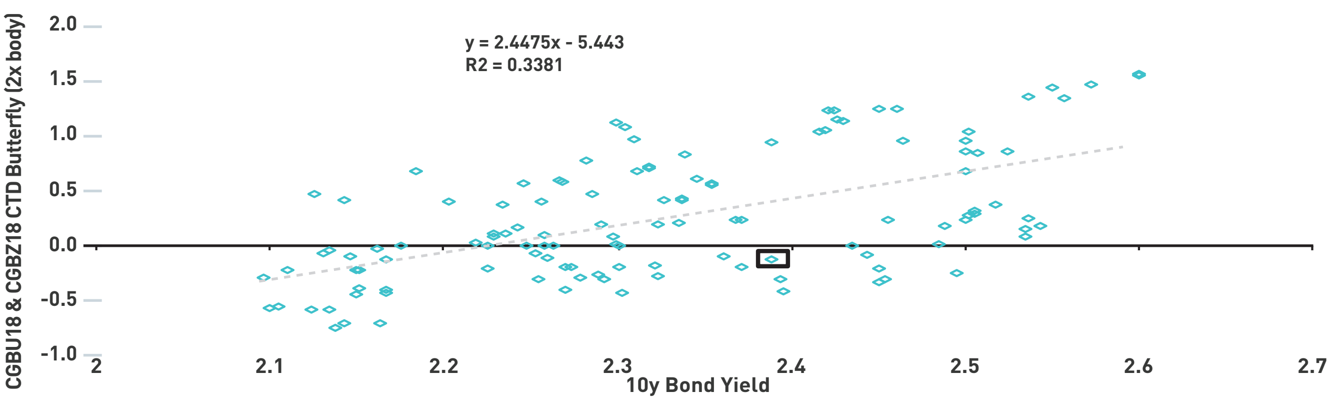


Source: BMO Capital Markets i Fixed Income Sapphire database

A second observation from Figure 5 is the similarity of the CGBZ18 CTD swap spread butterfly plot to the 10-year bond yield shown in Figure 1. In fact, since the Jun27 became the CTD for the active CGB contract in late May 2018, the level of 10-year yields has been a reliable driver of the rich/cheap observed in the CTD via the swap spread butterfly. We plot this relationship in Figure 6 and note that, given the large volume and open interest in CGB as the contract has become the go-to outlet for liquidity, a rise in yields is now commonly associated with a cheapening of the CTD vis-à-vis neighboring bonds as futures positions exert pressure on relative cash yields.

FIGURE 6

Canada 10y Bond Yield vs CGBZ18 CTD Butterfly



Source: BMO Capital Markets i Fixed Income Sapphire database

Key Metrics

As usual, we calculate and show the Key Metrics that might interest a Portfolio Manager with a position in either CGFZ18 or CGBZ18 who is contemplating his/her roll strategy this week in Figure 7 and Figure 8. We used closing prices on November 15th, long before CGFH19 will see executable levels but CGBH19 had already seen a few trades in the new contract.

For CGF this quarter, the CTD will change from the 1.75% Mar 2023 bond to the 2.00% Sep 2023 when the H19 becomes the active contract. Since the contract open interest is small relative to the amount of the outstanding deliverable bonds for both contracts, we anticipate an orderly roll.

Note that the implied repo for the front contract is identical to the overnight rate of 1.75% but that there is a December 5th Bank of Canada (BoC) fixed announcement date for monetary policy. This pricing is consistent with a complete lack of value to the embedded options in the contract as well as an expectation, also visible in the OIS swap markets currently, that the Bank of Canada will leave policy unchanged at the December meeting.

The settlement price for a CGFH19 contract that has neither open interest nor a listed bid/ask prior to the roll period probably doesn't reflect the tradeable price. However, once an executable price appears, investors should note that the H19 contract spans at least two BoC announcement dates[6] and that recent communications from Bank officials have indicated rates will probably be increased again in short order. The implied repo rate for the H19 contract should exceed the current overnight rate for the contract to be fairly priced. If it does not, astute PMs could attempt to arbitrage a long basis position against either BAX contracts or a 3-month OIS position since the embedded options in the futures contract should have no real value.

FIGURE 7

CGF Key Metrics

15-Nov-2018	Front (Dec18)	Back (Mar19)	Back - Front
Closing Price	115.920	116.41	
Cheapest-to-Deliver (CTD)	CAN 1.750% Mar 2023	CAN 2.000% Sep 2023	
Delivery Years	4.2	4.4	0.2
Conversion Factor	0.8426	0.8443	
CTD Clean Price	97.6780	98.5250	
CTD Yield	2.322%	2.327%	0.005%
Gross Basis	0.004	0.240	
Net Basis	0.000	0.143	0.143
Implied Repo	1.75%	1.38%	-0.37%
DV01/100 of CTD	4.0	4.5	0.5
Open Interest	3,670	0	
CTD Outstanding (millions)	15,000	12,000	-3,000
Multiple of Outstanding	0.0x	0.0x	0.0x

Source: CanDeal, Montréal Exchange, Bank of Canada

CGB will likely also have an uneventful roll period this time as the annual change to the deliverable basket won't occur for another six months. Although it would require over four times as much notional of the June 2027 bond than exists to fulfill delivery on all outstanding CGBZ18 contracts, this has become the norm as the CGB contract becomes more and more liquid, sizeable, and successful. We expect a busy roll period but few relative value opportunities to arise.

Although Figure 8 would appear to indicate an implied repo level below what one would expect, and thus that both Z18 and H19 contracts are cheap, we note that those implied repo levels are the implied repo to the end of the delivery period. Since a long basis position is negative carry for CGBZ18, short positions should choose to deliver early on their position and thus the correct contract implied repo pricing should be to first delivery rather than to the more normal final delivery. On November 15th implied repo for Z18 to first delivery was 1.93% (if executable, Z18 was just less than a penny rich) and for H19 1.86% (fair). Long positions in CGBZ18, unless they are comfortable with early delivery, should not risk the delivery period even if they have done so successfully in the past.

FIGURE 8

CGF Key Metrics

15-Nov-2018	Front (Dec18)	Back (Mar19)	Back - Front
Closing Price	133.200	131.96	
Cheapest-to-Deliver (CTD)	CAN 1.000% Jun 2027	CAN 1.000% Jun 2027	
Delivery Years	8.4	8.2	-0.2

6. December 5th, January 9th, plus another on March 6th during the delivery period for H19.

CGF Key Metrics

15-Nov-2018	Front (Dec18)	Back (Mar19)	Back - Front
Conversion Factor	0.6708	0.6783	
CTD Clean Price	89.3210	89.3210	
CTD Yield	2.391%	2.391%	0.000%
Gross Basis	-0.030	-0.187	
Net Basis	0.036	0.019	-0.017
Implied Repo	1.39%	1.70%	0.30%
DV01/100 of CTD	7.2	7.2	0.0
Open Interest	627,667	3,326	
CTD Outstanding (millions)	15,000	15,000	0
Multiple of Outstanding	4.2x	4.2x	0.0x

Source: CanDeal, Montréal Exchange, Bank of Canada

Impact and Potential Opportunities

Although we remain proponents of using both CGF and CGB for hedging rich/cheap opportunities in the deliverable basket and other bonds, those rich/cheap opportunities will likely arise from other catalysts rather than from the Z18-H19 roll.

To demonstrate, we draw the reader's attention to the auction schedule which will include at least two more taps of the Mar24 bond which will eventually end up in the deliverable basket for CGFH19. Auctions typically cheapen the bond to be tapped a few days prior to the event and relative value opportunities between Mar24 and the CGFH19 contract CTD should be easily hedged in futures, with caveats for liquidity if the reader is a very large account. Similar opportunities continue to occur around the 10-year point but bear no caveats for trade size as we believe the CGB is now the most liquid instrument in Canada bonds for normal trades.

Kevin Dribnenki writes about fixed income derivatives and opportunities in Canadian markets. He spent over 10 years managing fixed income relative value portfolios as a Portfolio Manager first at Ontario Teachers' Pension Plan and then BlueCrest Capital Management. During that time he managed domestic cash bond portfolios as well as international leveraged alpha portfolios and has presented at several fixed income and derivatives conferences. He received a BA in Economics from the University of Victoria, an MBA from the Richard Ivey School of Business, and holds the Chartered Financial Analyst designation.

For more information:

T: +1 514 871-3501

irderivatives@tmx.com

m-x.ca/futures

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