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Jun/Sep CGB Roll: A Roll Unlike the Others

The 10-year GoC bond futures (CGB) roll in late May from the June contract to the September contract is unlike all other contract rolls in Canadian physical delivery bond futures expiries. It requires changes in a portfolio manager’s trading strategy. Care should be taken, and managers need to be more engaged in the June to September roll versus all other fixed income contract rolls in Canada.

Contract Changes and Deliverable Baskets

Futures contracts expire quarterly and, prior to the delivery period, investors should roll existing positions that they wish to keep to the new active contract. With each new contract comes a change in the underlying basket of deliverable bonds (or the delivery basket); some new contracts have the same deliverable bonds, with minor changes to conversion factors, and some new contracts introduce new deliverable bonds and/or eliminate old bonds according to the published delivery standards (contract specifications) for inclusion in the basket.

Annual CTD Change

Until recently¹, there has been only a single 10-year bond auctioned by the Bank of Canada each year, which has restricted the number of potential bonds in the CGB basket to either two or three bonds, each with a maturity one year apart. Since bond yields are so low relative to the 6% notional coupon of the futures contract, the bond with the shortest maturity is virtually certain to be the cheapest-to-deliver (CTD) bond, and the CGB contract mimics the price action, maturity date, and interest rate sensitivity of this shortest maturity bond in the delivery basket.

However, eventually the shortest-maturity bond has a term to maturity of less than eight years² and is no longer included in the basket of deliverable bonds, at which point the next-in-line bond is virtually certain to become the cheapest-to-deliver bond and the new contract mimics the new bond. Historically, that happens in late May, just before the June delivery period begins and the September CGB contract becomes the active contract.

Below is an excerpt from the latest Montréal Exchange circular showing the deliverable basket for the next four CGB contracts.³ The 2.25% June 2029 bond is no longer in the basket after June 2021; instead, the cheapest-to-deliver bond will be the 1.25% June 2030.

FIGURE 1
Ten-Year Government of Canada bond futures contracts – CGB

GOVERNMENT OF CANADA BONDS		OUTSTANDING	JUNE 2021	SEPTEMBER 2021	DECEMBER 2021	MARCH 2022
COUPON	MATURITY	(CAN \$ MILLION)				
2.25%	June 1, 2029	12,300	0.7645			
1.25%	June 1, 2030	44,200	0.6734	0.6803	0.6873	0.6944
0.5%	December 1, 2030	40,000	0.6061	0.6139	0.6218	0.6298
TOTAL OUTSTANDING DELIVERABLE BONDS (CAN \$ million)			96,500	84,200	84,200	84,200

Conversion factors computed with a yield equal to 6%.

Source: Montréal Exchange, published on April 5, 2021

1 COVID-19 related spending has brought a 2nd maturity to the 10-year auction schedule, but it will not be relevant for CGB contracts until late May when the Sep2022 will become the active contract. It is unclear at this time whether the additional bond each year will be continued after the pandemic subsidies.
 2 As per the 10-year CGB delivery standards outlined in the contract specifications, eight years is the lower bound for the remaining time to maturity of an eligible bond in the delivery basket (range is 8 – 10 ½ years).
 3 The list of Deliverable Canadian Government Bond Issues and related conversion factors is published on a monthly basis on [Montréal Exchange’s website](#).

Annual Maturity/DV01 Extension

Note that, unlike in other contracts and unlike in most other futures markets, the change in the likely cheapest-to-deliver bond is a maturity extension of a full year because no other bonds exist in-between, except (sometimes) old 30-year bonds, which do not qualify for inclusion in the CGB deliverable basket.⁴ As a result, the change in the contract characteristics from June to September is significant.

The combination of a 1-year extension in the maturity of the cheapest-to-deliver bond and a change in coupon inevitably causes a significant increase in DV01, or interest rate sensitivity, for the September contract in comparison to the June contract. For example, at yields observed in early April, the DV01 of the September contract will be 12.4 cents while that of the June contract is just 10.4 cents, for a difference of almost 2 cents. In contrast, the DV01 difference between the March and June CGB contracts in February 2021 was less than 1/10th of a cent.

DV01 Effect on Roll Fair Value

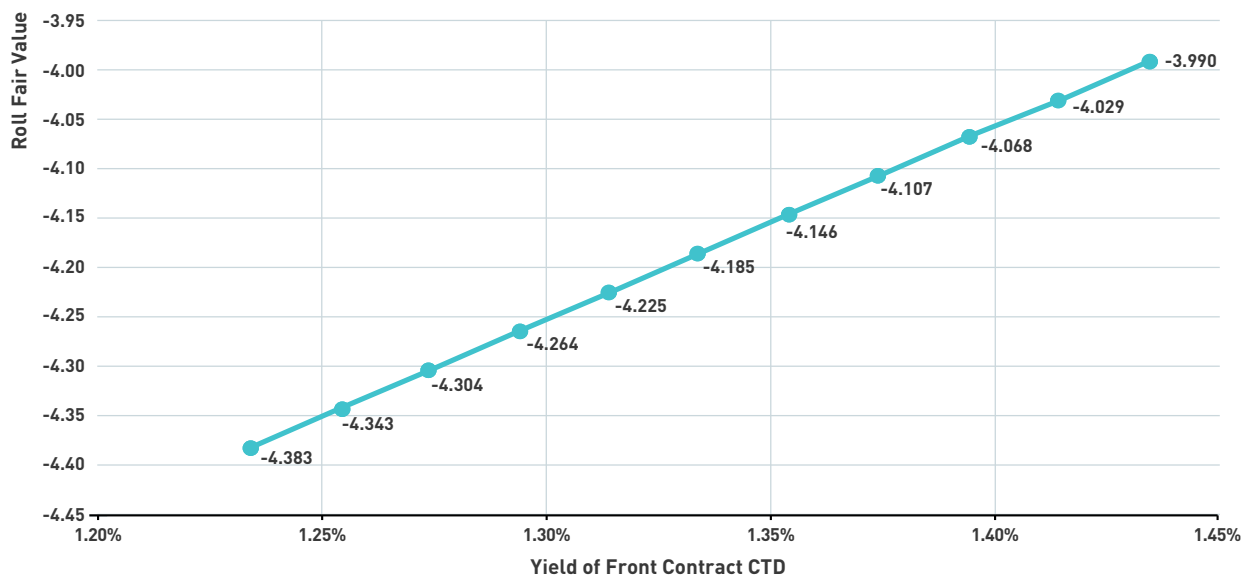
The above-noted change of contract DV01 between the June and September contracts is important for two reasons.

First, the DV01 difference causes a disjoint between supply/demand for June contracts and supply/demand for September contracts, because each September contract has the same interest rate sensitivity as 1.2 June contracts. As such, investors demand fewer (either long or short) of the September contracts than the June contracts which, depending on which investors need/want to roll their positions at various times, can cause temporary deviations from fair value for one or both of the June and September contracts. We can expect the calendar spreads, or roll prices, to be more volatile than they are during the other quarterly roll periods for CGB.

Second, the DV01 difference causes complications for investors trading the roll, because they need to buy and sell the calendar spread based on prices, not yields. In Figure 1, we show the estimated fair value, days before the first notice day, of the CGB Jun/Sep roll if both contracts trade at an implied repo rate of 0.15% and the yield curve slope is unchanged. A 10-basis-point move up or down in 10-year rates would be a volatile day, but is still possible, so we have plotted the current 10-year yield as the midpoint on the x-axis in the figure, and we show 10 basis points of yield higher and lower.⁵ The fair value for the roll (the Jun/Sep M21/U21 calendar spread) given the above assumptions is shown on the y-axis and can vary by up to 20 cents during a day when 10-year rates move higher or lower by 10 basis points. Note that, by definition, this change in the fair value of the roll excludes changes in the slope of the yield curve or any change in the relative value of either contract relative to bonds; the slope of the curve is held constant, as is the implied repo rate of each contract.

FIGURE 2

CGBM21/CGBU21 Roll Fair Value vs. Rate Level, May 25/21



Source: Montréal Exchange, author's calculations

⁴ Unless the old bond has been re-opened in the last 12-month period preceding the first notice day, which is extremely rare but still possible.

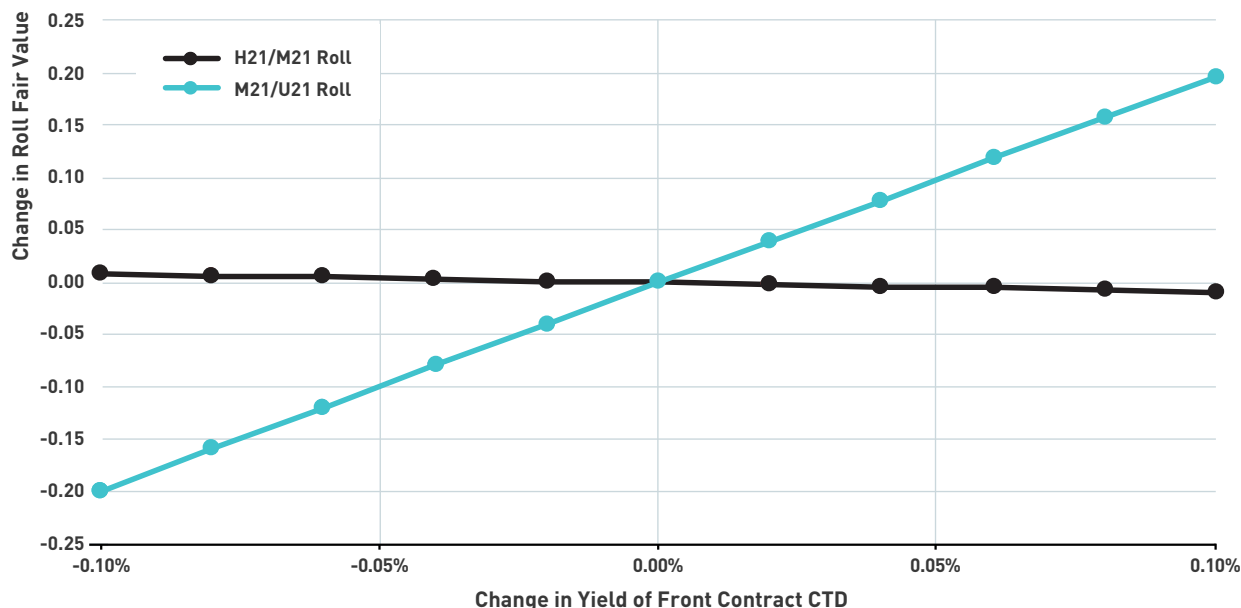
⁵ The two contracts also have a convexity difference, so the line is not actually straight but concave to the origin. The curvature is neither noticeable nor relevant for small interest rate moves.

Unusual Compared to Other Roll Periods

To put Figure 1 into perspective, we have plotted the Mar/Jun CGB roll and the Jun/Sep CGB roll, shown in Figure 2. Recall that the Mar/Jun roll had almost zero difference in DV01,⁶ as the two contracts shared the same cheapest-to-deliver bond. Fair value of the Mar/Jun roll was very stable for a normal-sized daily move in interest rates, unlike the Jun/Sep roll.

FIGURE 3

Roll Fair Value with Changing Yield Levels, H21/M21 and M21/U21



Source: Montréal Exchange, author's calculations

The large DV01 difference experienced between the June and September CGB contracts is unique for contracts in Canada at this time. The 5-year CGF contract has a change in the probable cheapest-to-deliver bond twice per year, but the 6-month maturity extension and shorter maturities included in that delivery basket means that the DV01 difference between the two contracts is less than a third of the difference (just 0.7 cents in March to June) between a June and September CGB contract. In addition, 10-year interest rates are normally more volatile than 5-year rates.

The 2-year CGZ contract has basket changes even more often, but the DV01 difference of a 3- or 4-month maturity extension in a 2-year bond is just a quarter of a cent normally,⁷ or less than an eighth of the DV01 difference in the CGB Jun/Sep roll.

Implications

The Jun/Sep roll phenomenon described above has important implications for portfolio managers.

First, the notion of setting a limit price for the roll, either electronically or with a broker, can create problems. An investor may find that he or she has too much interest rate exposure if doing a one-for-one buy/sell, and may find that the market quickly trades away from the limit price as interest rates fluctuate, a phenomenon that does not really happen in other CGB rolls.

Second, managers that prefer to get paid to provide liquidity and that usually set a limit price for the roll and wait for the market to come to their price may find that they are actually liquidity takers rather than liquidity providers as interest rates move. In short order, their limit price can change drastically from, for example, a bid below the current fair value to lifting the current offer of a more nimble investor who has recognized that fair value has changed due to a fluctuation in interest rates.

Third, variations in supply and demand for the June and September contracts due to the different interest rate sensitivities can cause the roll price (calendar spread) to deviate from fair value by up to a few cents at times. At least in theory, given the mismatch between the DV01 of a June and September contract, more trades could occur away from the so-called fair value.

Fourth, due to the combination of the three implications noted above, opportunities should be abundant for nimble, engaged managers during the Jun/Sep roll period in the final week of May. Inevitably, some managers may be unaware of the unusual roll dynamics moving to the September contract, or they may just not have the time to monitor fair value or their trade in real time due to other responsibilities. Managers who can actively trade the roll could potentially find more profitable opportunities during a Jun/Sep CGB roll than during the other quarterly contract rolls.

⁶ Almost but not actually zero, since the conversion factors change.

⁷ The DV01 difference depends on current interest rates, slope of the curve, term to maturity of the relative expected cheapest-to-deliver bonds, and their respective coupon rates.



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