CGZ Two-Year Government of Canada Bond Futures

CGF Five-Year Government of Canada Bond Futures

CGB Ten-Year Government of Canada Bond Futures

LGB Thirty-Year Government of Canada Bond Futures

MONTRÉAL EXCHANGE

Z24-H25

Roll Update

November 2024

QUARTERLY ROLL Summary

First notice for December contracts is November 29th, a business day prior to first delivery on December 2nd, 2024. However, the US markets will have limited participation from mid-day November 27th through the end of the weekend following Thanksgiving. While Canada celebrates this holiday about five weeks earlier, the lack of US benchmarks and participants often causes the Canadian contract roll to begin and end early. The liquid part of the move from December 2024 to March 2025 contracts may start as early as November 22nd and will mostly wrap up by the 27th. Last delivery, important for some contracts after the last Bank of Canada policy move, is on December 31st[1].

In mid-November, overnight repo rates are 3.8%, higher than the cheapest-to-deliver bond coupon on all contracts except the CGZZ24 (Two-Year Government of Canada Bond Futures (CGZ™)) which is, consequently, the only Montréal Exchange contract that trades at a positive basis. For the March contracts, the Five-Year Government of Canada Bond Futures (CGF™) is the only one that will probably trade at positive basis during its time as the active contract given the current shape of the front-end of the yield curve. As of today, short futures positions[2] in CGZZ24 will most likely deliver at the end of December but CGFZ24 (5-year) and CGBZ24 (10-year) will deliver at the start of December unless they are attempting to capitalize on wildcard options.

1 Markets closing at 1:30pm December 31st.

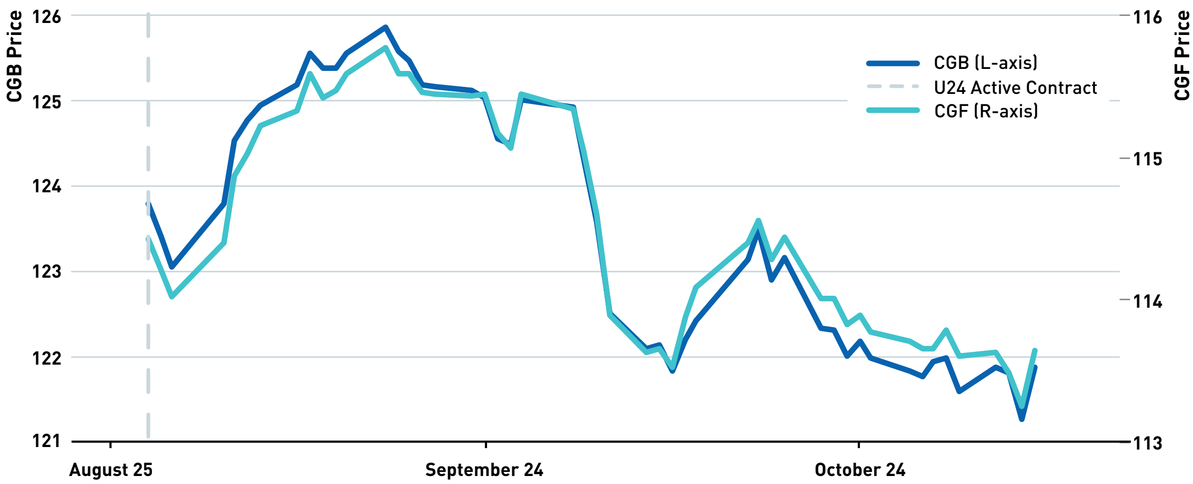
2 LGB (30-year) contracts can't be delivered early. All deliveries this quarter occur on December 18th.

Speculative Positioning

We are writing at the end of the week of the Republican wins in the House, Senate and Presidential races which has resulted in somewhat volatile fixed income (and equity) markets. However, markets did a more-or-less efficient job of predicting those outcomes and the general trend during the quarter has been to lower prices (higher yields) in fixed income markets south of the border which has been mirrored to some extent in Canada. Figure 1 shows the trend to lower prices for both CGF (5-year) and Ten-Year Government of Canada Bond Futures (CGB™) contracts during the quarter and, although not shown, the trend in both CGZ and the 30-Year Government of Canada Bond Futures (LGB™) contracts has been similar.

FIGURE 1

CGF & CGB Price, U24s

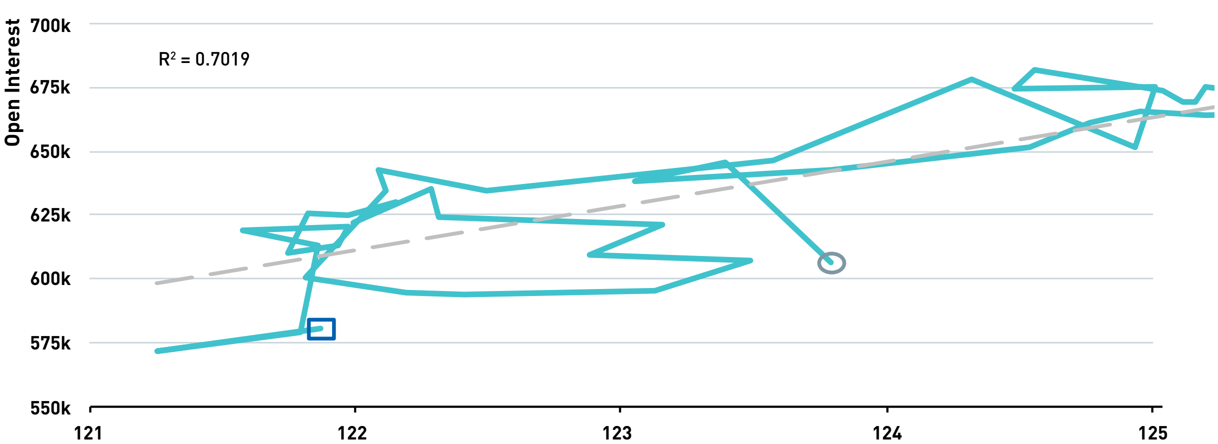


Source: Montréal Exchange

We speculate that trend following models are short contracts but, perhaps, at less than full risk given the uncertainty that existed around the US election. The temptation to reduce risk despite what a model was telling them must have been very large for the managers of such algorithmic portfolios. Figure 2 shows the R-squared of CGBZ24 open interest with respect to price. The value of over 0.7 is high but the open interest fell as the election approached. Overall, we expect that models are in the short trade but with less than normal risk allocations.

FIGURE 2

CGBZ24 Price versus Open Interest



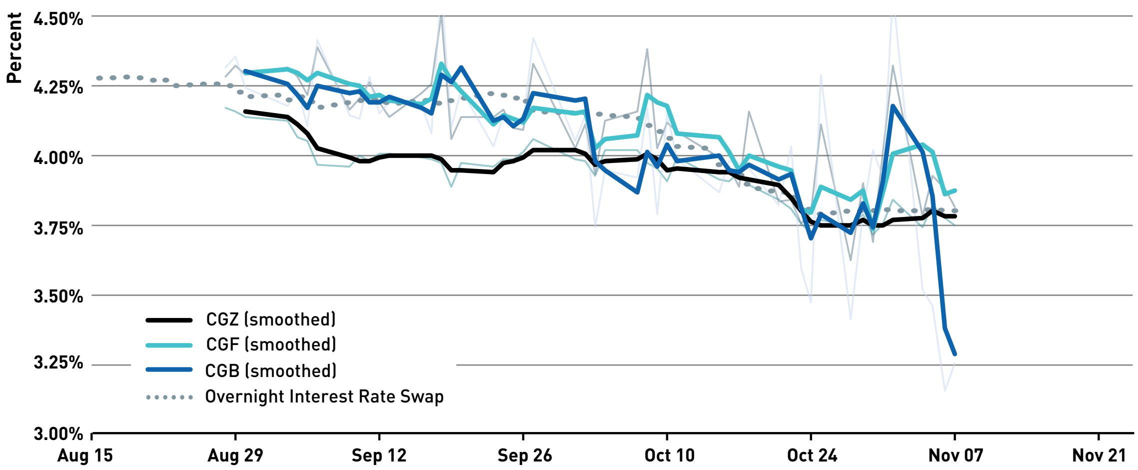
Source: Montréal Exchange

Unless some managers expect to profit from embedded options in the contracts, futures contracts should trade at an implied repo of about 3.8% for early delivery and 3.7% for late delivery (the CGZ contract). That's a moving target, of course, as expectations of Bank of Canada policy evolve in the futures basis market as well as in other equivalent markets. This quarter, the implied repo on the contracts was largely "well behaved" as they tracked similar terms in the overnight interest rate swap market, as shown in Figure 3. For CGB contracts (10-year), most of that tight relationship was broken in the volatility leading up to and following the US election either due to liquidity imbalances between bonds and futures or because volatility in general is expected to be higher under the new administration. Higher volatility results in higher option values which are reflected in lower futures contract prices.

Currently, it appears the CGB contract is trading cheap relative to its cheapest-to-deliver bond, to reflect the three cents of wildcard option value, after trading quite rich[3] in the days leading up to the election. We suspect basis markets will stabilize significantly before publication date of these observations but note that rapid fluctuations in implied repo (and gross basis) can be opportunities for dealer desks but also large buy-side investors as well.

FIGURE 3

Implied Repo: CGZ, CGF, CGB



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

Cheapest-to-Deliver Switch

Falling yields have virtually eliminated any plausible Cheapest-to-Deliver (CTD) switch potential in all contracts. Generally, CTD math favours shorter maturities and higher coupons and, although there are a few bonds in the 10-year basket that have higher coupons than the current CTD for the March 2025 contract, none are high enough to plausibly result in a CTD change.

Figure 4 shows the conditions that could result in a CTD switch for the popular CGB (10-year) contract. An unexpected selloff of 100 basis points accompanied by an even more implausible 8+ basis point steepening within the 10-year portion of the yield curve would result in a CTD switch at/near delivery. As usual in Canadian fixed income contracts, cheapest-to-deliver bonds appear to be known and nearly certain well in advance.

3 At levels so rich that it appears the option had a negative value. While implausible under strict no-arbitrage assumptions, this tends to happen quite often in futures contracts when interest rates are volatile or strongly trending.

FIGURE 4

Jun33 Yield

SLOPE	2.61%	2.76%	2.91%	3.06%	**3.21%**	3.41%	3.61%	3.81%	4.01%	4.21%	4.41%	4.61%	4.81%	5.01%	5.21%	5.41%
-5.0	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
-3.7	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
-2.3	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
-1.0	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
0.3	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
1.6	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**	**Jun33**
3.3	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
5.0	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Dec33
6.7	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Dec33	Dec33	Dec33	Dec33
8.3	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Jun33	Jun33	Jun33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33
10.0	Jun33	Jun33	Jun33	Jun33	**Jun33**	Jun33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33	Dec33

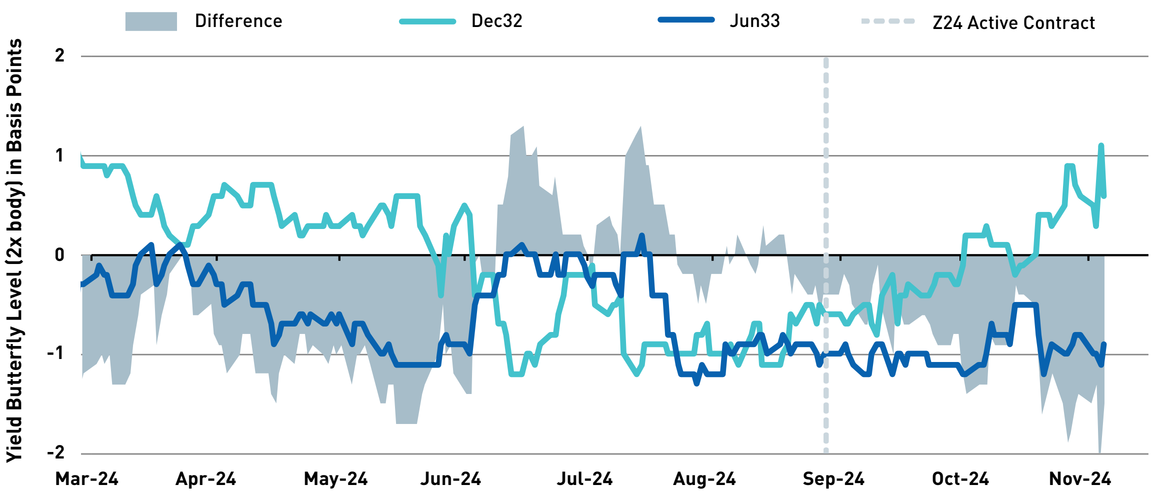
Source: Author Calculations

Relative Value of the CTD Bonds

The interesting relative value "story" this quarter lies in the change to CTD that will happen as the H25 (March 2025) contract takes active status from the December 2024 CGB (10-year) contract. This change, twice per year since the pandemic and not likely to change soon, often results in changes to the relative value of bonds in the delivery basket. Typically, the CTD develops a liquidity premium (but can also be driven to cheap levels by outsized flows) while it is associated with the active contract, and then loses the premium immediately after, or in anticipation of, the change to the new contract. While parsing the reasons behind the relative value changes can be difficult, observing them is easy and the 2.5% December 2032 Canada bond, CTD to the U24 and Z24 but not the H25, has moved to progressively cheaper levels relative to neighbouring bonds since late summer. Most of this relative value move has probably been driven by the prolonged selloff as various dealer clients who see the benefits of trading in CGB instead of 10-year bonds have pushed the contract and its CTD to cheaper and cheaper levels versus similar maturity bonds. Figure 5 shows just how cheap (about 2 basis points on the yield butterfly) the December 2032 has become relative to the new contract CTD, the June 2033.

FIGURE 5

Dec32 v. Jun33 Yield Butterfly



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

Managers with a relative value mindset should prefer to close short positions early (the underlying bond is cheap) in CGBZ24 contracts.

Key Metrics & Expectations

As usual, we show tables of key metrics for each contract this quarter in Figure 6, Figure 7, Figure 9, and Figure 10. We used closing prices on November 7th and March contracts all had zero open interest, so we use the exchange settlement price even though it is usually not a tradeable price before the roll begins.

CGBZ24 to CGBH25

The semi-annual change to the cheapest-to-deliver for the CGB contract occurs this quarter so there is a 5% DV01 extension between the contracts (not shown in Figure 6). The roll will consequently be unstable intraday with 3-4 cent changes to fair value possible on some days when the outright level of rates changes by 5-10 basis points.

Trend following models are probably short this contract but, presumably, at less than full risk given the unpredictability and expected market volatility around the US election. The open interest is almost 75,000 contracts below its peak in late October.

Despite the lesser risk allocation, we are confident that short positions looking to roll early these portfolios will drive the roll dynamic. Combined with relative value players that see the CGBZ24 cheapest-to-deliver as very cheap to neighbour bonds (Figure 5, above) both price sensitive and price-insensitive managers should be enthusiastic buyers of Z24 and sellers of H25 to roll their positions. Pressure will mount towards a higher roll price before more patient liquidity providers step in to meet the excess demand.

The contract is a fraction of a cent rich to bonds, once the 3-cent value of the wildcard is included, so that could become a mitigating factor for some short positions looking to buy contracts. Some CGB positions will inevitably be taken into delivery for wildcard plays but such managers will still be anxious to deliver early given the negative carry of the long basis position.

FIGURE 6
CGB Key Metrics

7-NOV-2024	CGBZ24	CGBH25	DIFFERENCE
Closing Price	121.880	122.540	-0.660
Cheapest-to-Deliver (CTD)	CAN 2.500% Dec 2032	CAN 2.750% Jun 2033	Change!
CTD Conversion Factor	0.7802	0.7909	
Probable Delivery Date	02-Dec-24	03-Mar-25	
Gross Basis (cents)	-5.1	-33.0	
Net Basis (cents)	1.2	-27.4	
Implied Repo (to Prob. Delivery)	3.50%	3.95%	
DV01/100 of CTD	6.8	7.3	6.3%
Open Interest	580,576	0	
CTD Outstanding (millions)	21,000	19,000	-2,000
Front OI Multiple of CTD	2.8x	3.1x	

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

CGFZ24 to CGFH25

This quarter there is no change to the cheapest-to-deliver bond on the CGF (5-year) contract as both the December and March contracts share the 3.5% September 2029. Oddly, for a time of significant fixed income volatility, the CGF contract has been trading very near to fair value except for a couple of days recently.

For the December contract, delivery will occur early for any positions held into the delivery period since the current CORRA rate of 3.8% exceeds the 3.5% coupon on the cheapest-to-deliver bond. In contrast, for the March 2025 delivery dates, the same CTD coupon is 50 basis points above the expected CORRA rate on the delivery dates in March 2025. The new contract should thus price at positive basis immediately but could also fluctuate between positive and negative multiple times during the quarter as the shape of the front end of the yield curve evolves. At this time, we'd expect delivery for the March contract to occur at the end of the delivery period, much like it should for the CGZZ24 contract this quarter.

Speculative models, if they are using CGF, are probably at less than full risk, having taken some chips off the table heading into the US election. The correlation between open interest and contract price is near zero this quarter so we believe models and trend following traders are more focused on either the 10-year or front-end portions of the yield curve. Given these observations, we don't have a strong view on directionality of trading pressure for this contract during the roll this quarter.

Fair value of the roll should be stable intraday due to the lack of CTD change between contracts. In fact, a 10 basis point move in the level of rates only changes the fair value of the roll from CGFZ24 to CGFH25 by 0.2 cents this quarter so interested parties should be able to safely leave orders which will stabilize the roll even further.

FIGURE 7
CGF Key Metrics

7-NOV-2024	CGFZ24	CGFH25	DIFFERENCE
Closing Price	113.640	113.270	0.370
Cheapest-to-Deliver (CTD)	CAN 3.500% Sep 2029	CAN 3.500% Sep 2029	Change!
CTD Conversion Factor	0.8979	0.9027	
Probable Delivery Date	02-Dec-24	31-Mar-25	

7-NOV-2024	CGFZ24	CGFH25	DIFFERENCE
Gross Basis (cents)	-2.7	-23.9	
Net Basis (cents)	-0.5	-24.2	
Implied Repo (to Prob. Delivery)	3.89%	4.07%	
DV01/100 of CTD	4.5	4.5	13.3%
Open Interest	196,185	0	
CTD Outstanding (millions)	30,000	30,000	-500
Front OI Multiple of CTD	0.7x	0.7x	

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

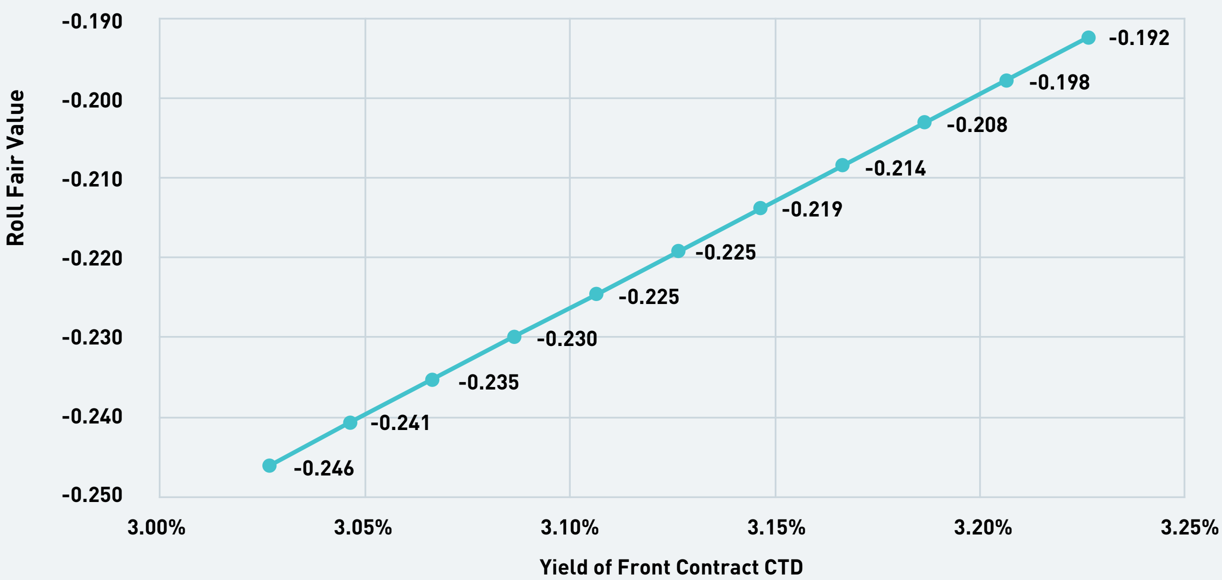
CGZZ24 to CGZH25

The CTD of the CGZ (2-year) contract will change from the 4% August 2026 to the 3.25% November 2026. The DV01 of the contract will extend by almost 15%, a little more than usual, due to the longer maturity accompanied by a lower coupon on the CTD for the March contract. Currently, since the 4% coupon on the December contract CTD exceeds the 3.8% CORRA rate, the CGZZ24 has moved from its initial negative basis pricing to positive and short positions are expected to deliver at or near the end of the delivery month to collect their positive carry – a first for Montréal Exchange contracts for many quarters.

As usual for CGZ, where the roll price is unstable due to the DV01 difference between the contracts, managers should be careful leaving standing orders this quarter as the CGZ roll fair value pricing can easily fluctuate by a few cents intraday as modeled in Figure 8. Most managers are very concerned with unstable pricing at the front end where a partial cent matters much more than in longer term bonds.

FIGURE 8

CGZZ24/CGZH25 Roll Fair Value v. Rate Level - Nov 26/24



Source: Author Calculations

Like the other contracts this month just after the election, CGZZ24 contracts are reasonably priced, or perhaps as much as one cent rich to bonds. We don't think algorithmic models utilize this contract much and there was, as usual, little correlation between price and open interest this quarter for the CGZ (2-year) contract.

FIGURE 9
CGZ Key Metrics

7-NOV-2024	CGZZ24	CGZH25	DIFFERENCE
Settle Price	104.710	105.270	-0.560
Cheapest-to-Deliver (CTD)	CAN 4.00% Aug 2026	CAN 3.25% Nov 2026	Change!
CTD Conversion Factor	0.9687	0.9569	
Probable Delivery Date	31-Dec-24	31-Mar-25	
Gross Basis (cents)	2.2	-41.8	
Net Basis (cents)	0.7	-51.1	
Implied Repo (to Prob. Delivery)	3.75%	4.30%	
DV01/100 of CTD	1.7	1.9	13.3%
Open Interest	212,366	0	
CTD Outstanding (millions)	22,000	21,500	-500
Front OI Multiple of CTD	1.0x	1.0x	

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

LGBZ24 to LGBH25

The LGB roll is never urgent now that the potential for early delivery has been eliminated in the contract specifications. The open interest begins to fall at around the time of the liquid roll in other contracts but doesn't really decline to zero or close to it until just a few days before the delivery date midway through the contract expiry month.

LGBZ24 trades close to fair value, almost always, and there is no change to the cheapest-to-deliver bond this quarter. There is a change coming to the December 2025 contract, still a year away, which will eliminate the 2053 as an eligible bond although it had little chance of ever again being the CTD bond for the LGB contract in the current interest rate regime.

FIGURE 10
LGB Key Metrics

7-NOV-2024	LGBZ24	LGBH25	DIFFERENCE
Closing Price	165.400	165.500	-0.100
Cheapest-to-Deliver (CTD)	CAN 2.750% Dec 2055	CAN 2.750% Dec 2055	No change
CTD Conversion Factor	0.5450	0.5462	
Delivery Date	18-Dec-24	20-Mar-25	
Gross Basis (cents)	-6.6	-31.9	
Net Basis (cents)	0.5	-6.7	
Implied Repo (to Delivery)	3.73%	4.05%	
DV01/100 of CTD	18.1	18.1	0.0%
Open Interest	637	0	
CTD Outstanding (millions)	26,750	26,750	0
Front OI Multiple of CTD	0.0x	0.0x	

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

September Delivery Summary

It appears successful wildcard option exercises were executed in September in CGBU24 contracts. Around 4% of each of the CGFU24 and CGBU24 contracts were taken into the delivery period without rolling but profits were minimal for wildcard plays.

Almost 17,000 CGBU24 contracts gave notice to deliver on September 3rd and then delivered one day later on the 4th. They probably[4] took advantage of a 7-cent rally in bonds after the settlement price of the futures contract was established to sell their hedge tail at a profit but realized only small profits, around $350,000 for all the contracts delivered, for doing so. We can't know if this was their strategy, nor what they initially paid for the embedded options, but we recognize that the lower profits are a function of higher conversion factors for bonds in the CGB delivery basket, a factor that will continue to limit the profitability[5] of these types of strategies for at least the next 6 months. Figure 11 shows a summary of the quantity delivered and likely profits for wildcard players in CGBU24 in September.

FIGURE 11

			CGBU24		
QUANTITY	**POSITIVE CARRY REMAINING / CONTRACT**	**WILDCARD OPTION VALUE / CONTRACT**	**CTD EQUIVALENT WILDCARD EXERCISE THRESHOLD**	**CTD 3PM-5PM ΔPRICE**	**THEORETICAL WILDCARD EXERCISE $GAIN**
1,426	0.000	0.030	19,775	0.000	0
16,707	0.000	0.029	1,090,478	0.072	351,247
398	0.000	0.027	0	0.034	3,935
2,014	0.000	0.026	0	0.026	14,930
0	0.000	0.025	0	-0.034	0
0	0.000	0.023	0	-0.014	0
10	0.000	0.021	0	-0.008	0
303	0.000	0.019	0	-0.034	0
0	0.000	0.016	0	-0.035	0
0	0.000	0.014	0	-0.068	0
0	0.000	0.010	0	0.025	0
0	0.000	0.006	0	0.008	0
0	0.000	0.000	0	-0.026	0
0	0.000	0.000	0	0.051	0
0	0.000	0.000		-0.106	
0	0.000	0.000			
0	0.000	0.000			

4 As usual, we are speculating based on publicly available data. The authors have no knowledge of the time delivery notice was given, the position or client details of the notice/delivery, nor their reasons for doing so.

5 Although a return to random policy announcements in the second Trump administration can, arguably, create a much more valuable wildcard option.

		CGBU24			
QUANTITY	**POSITIVE CARRY REMAINING / CONTRACT**	**WILDCARD OPTION VALUE / CONTRACT**	**CTD EQUIVALENT WILDCARD EXERCISE THRESHOLD**	**CTD 3PM-5PM ΔPRICE**	**THEORETICAL WILDCARD EXERCISE $GAIN**
0	0.000	0.000			
0	0.000	0.000			
0	0.000	0.000			
20,858	← 4.2% of OI				**$370,111**

Source: CDCC Delivery Reports, BMO Capital Markets[i] Fixed Income Sapphire database, Author Calculations

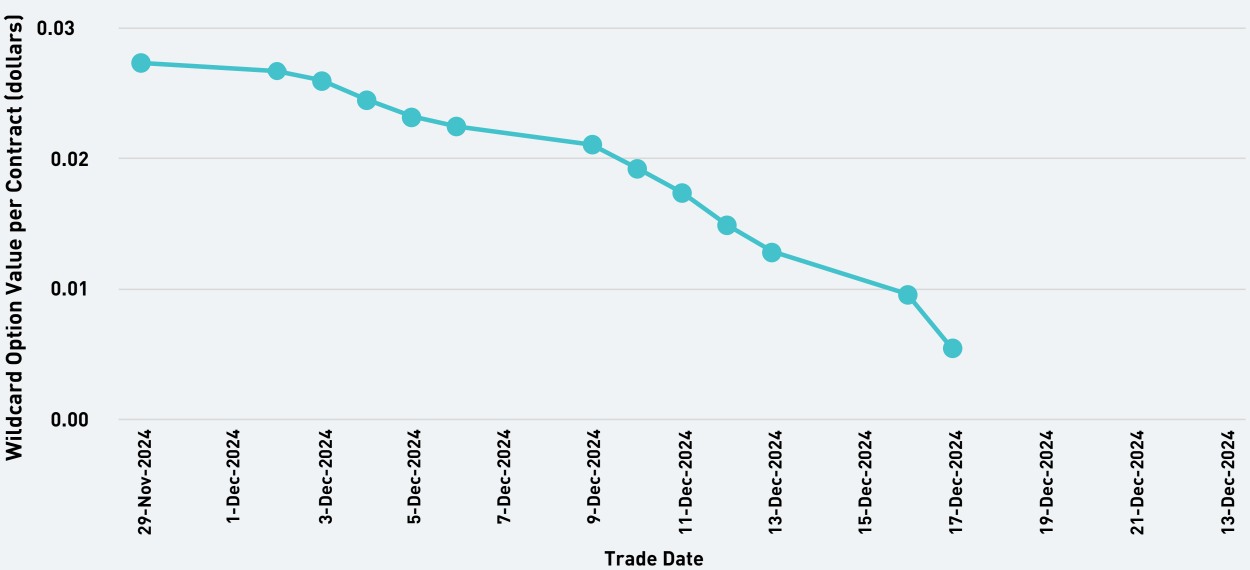
Wildcard Option Value

Even though the theoretical value of the wildcard in CGB (and CGF) is at much lower levels than it has been in the past, managers with long positions in futures still need to be aware that large numbers of contracts are often taken into delivery and then delivered early, usually on days when the bond market sees significantly higher prices in the afternoon.

Since many managers who utilize futures aren't utilizing them for the embedded option value, we calculate and produce a chart each quarter to show the theoretical value of the wildcard option embedded in CGB contracts. At present, given existing volatility and the specifications of the December CGB contract, it is almost 3 cents per contract but will begin to decay by about 0.2 cents per contract during each business day of the delivery period. Prior to the delivery period, the value is very stable at just under 3 cents which is why the CGB contract almost always appears to be 2-4 cents cheaper than the cheapest-to-deliver bond in the futures basis market.

FIGURE 12

CGBZ24 Wildcard Option Value



Source: Author Calculations

LOOKING FORWARD & Opportunities

- Managers that think the Bank of Canada could be more aggressive than front-end rates currently predict could consider buying the 2-year futures basis (sell the futures, buy the bond) as a more aggressive Bank of Canada would result in the long basis position changing from negative carry to positive. Essentially a successful purchase of the embedded timing option.
- Cross currency opportunities, especially between Canada and the USA, are often attractive and should be even more so in the coming volatility expected under the Trump administration. We wrote about some possibilities in October[6], including why US and Canadian rates may diverge under a Trump administration.
- Nimble traders interested in exploiting micro-price anomalies may consider the very cheap CTD for the December contract which will probably richen relative to that of the March contract. One could buy the 2.5% December 2032 bond and sell the CGBH25 contract in anticipation of the latter taking a premium for liquidity after the roll and the former normalizing in price relative to its neighbour bonds.

6 "US Presidential Election Strategies" published by Montréal Exchange in October 2024.

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