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

U24-Z24 Roll Update

August 2024

TMX

QUARTERLY ROLL Summary

September contracts are impacted by the National Day for Truth and Reconciliation which occurs on what would normally be the last delivery date. First notice is August 30th, due to the move to T+1, and the most liquid part of the roll period will probably begin on August 27th. Last delivery is an unusually early September 27th with last notice the day prior due to the weekend and statutory holiday on the 30th.

As we write, overnight repo rates are still higher than the cheapest-to-deliver (CTD) coupon on all the contracts this quarter, ensuring negative carry for long basis positions. That could change shortly but will probably change for the December Two-Year Government of Canada Bond Futures (CGZ™) contract by the time we are writing next quarter given current expectations of Bank of Canada activity. The other contracts have more time before their gross basis switches from negative to positive due to lower CTD coupons. As of today, all short futures positions[1] will most likely deliver early unless they are attempting to capitalize on wildcard options.

Ten-Year Government of Canada Bond Futures (CGB™) wildcard option players continue to participate (and prove our predictions wrong) for significant profits.

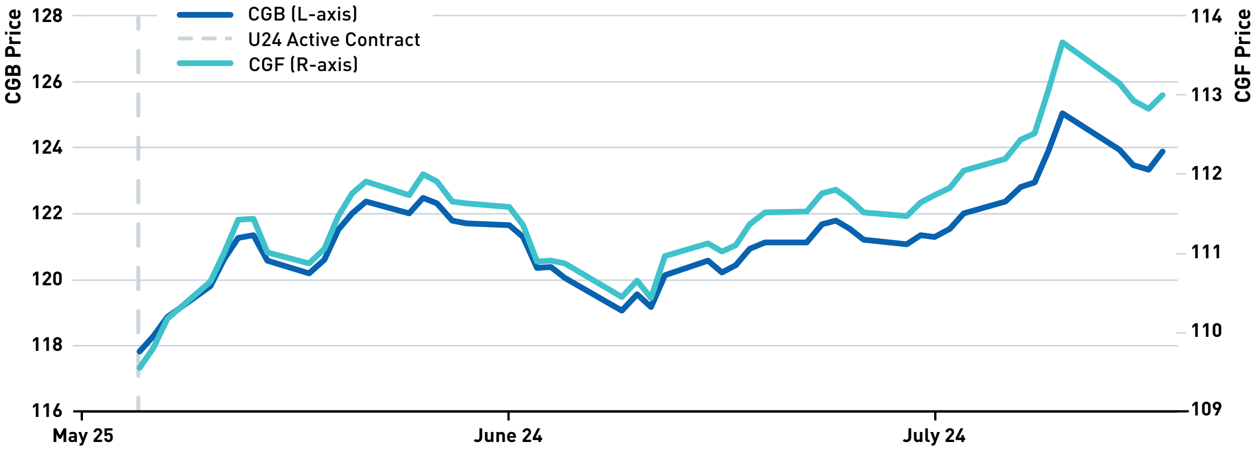
1 30-Year Government of Canada Bond Futures (LGB) contracts can't be delivered early. All deliveries this quarter occur on September 18th.

Speculative Positioning

Unlike positions in equities, we believe that most trend model portfolios benefited from the surprise volatility in markets in early August. Our reasoning is that the established price trend was upward in fixed income and the reaction to volatile equity markets was a push higher – in the direction of the trend, rather than a price reversal – in bond and futures markets. An eventual price reversal, obvious in Figure 1, may have caused a reduction in risk allocated to Canadian bond futures, as would a general de-risking by models reacting to equity volatility and undergoing a cautionary risk reduction move.

FIGURE 1

CGF & CGB Price, U24s

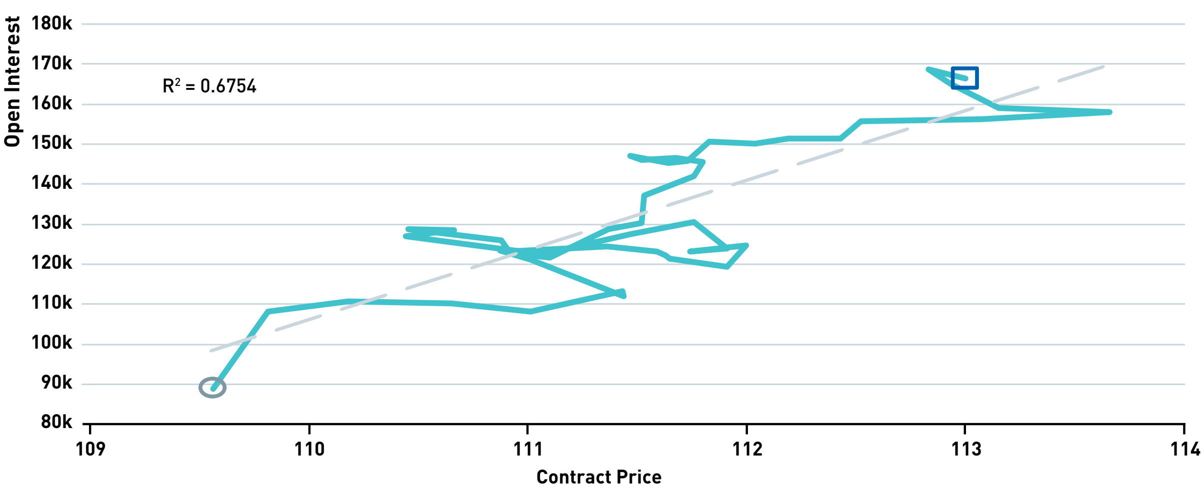


Source: Montréal Exchange

Due to the above arguments, as well as high correlations between open interest and prices on CGZ (2-year), Five-Year Government of Canada Bond Futures (CGF™), and CGB (10-year) contracts, we believe trend following models are long contracts but at less than full risk. Figure 2 shows the R-squared of CGFU24 open interest with respect to price. The value of almost 0.68 is one of the highest in recent quarters and the open interest has not fallen as prices reversed from their highs recently; a good indication that trend models may still be allocating significant risk to these products.

FIGURE 2

CGFU24 Price versus Open Interest

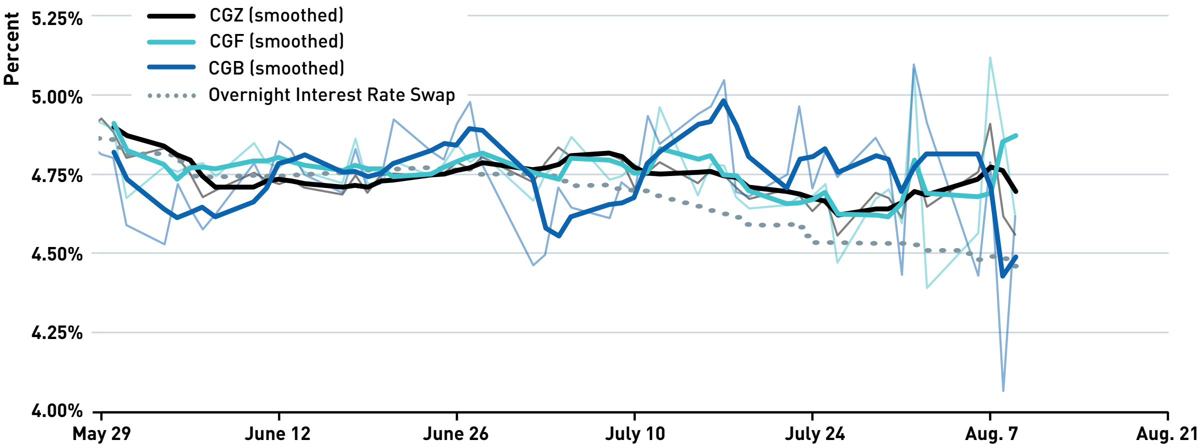


Source: Montréal Exchange

As one may expect in times of market turbulence, the relative value relationship between futures contracts and cheapest-to-deliver (CTD) bonds was volatile during the large price swings in most markets. Figure 3 shows the implied repo for 2-year, 5-year, and 10-year contracts which, given the volatility, fluctuated quite widely. In general, though, there was a tendency for contracts to trade rich relative to underlying bonds (contract implied repo above the overnight interest rate swap line in the figure), another indication that the rising price was drawing in fast trading accounts that prefer electronic futures execution over cash bond purchases. Bonds seemed to lag futures for much of July and even into this month, with the exception of the CGB contract in early August.

FIGURE 3

Implied Repo: CGZ, CGF, CGB



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

Cheapest-to-Deliver Switch

Yields have fallen and there is almost no probability that a CTD switch will occur this quarter. We show the CGB (10-year) contract below as we feel obligated each quarter to offer some assurance to international readers who expect CTD switches to be plausible. In Canada they are highly improbable at current yields.

Figure 4 shows the conditions that could result in a CTD switch for the popular CGB (10-year) contract. A selloff of 100 basis points accompanied by an even more implausible 6 basis point steepening of the yield curve would finally result in a CTD switch. We do not expect anything like this to happen given current market and economic conditions. Switches are even less likely, or genuinely impossible due to single bond delivery baskets, in the other contracts this quarter.

FIGURE 4

Dec32 Yield

SLOPE	2.47%	2.62%	2.77%	2.92%	**3.07%**	3.27%	3.47%	3.67%	3.87%	4.07%	4.27%	4.47%	4.67%	4.87%	5.07%	5.27%
-5.0	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
-3.8	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
-2.5	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
-1.3	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
0.0	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
1.2	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**	**Dec32**
3.0	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32
4.7	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Jun33	Jun33
6.5	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Dec32	Jun33	Jun33	Jun33	Jun33
8.2	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Dec32	Dec32	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33
10.0	Dec32	Dec32	Dec32	Dec32	**Dec32**	Dec32	Dec32	Dec32	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33	Jun33

Source: Author Calculations

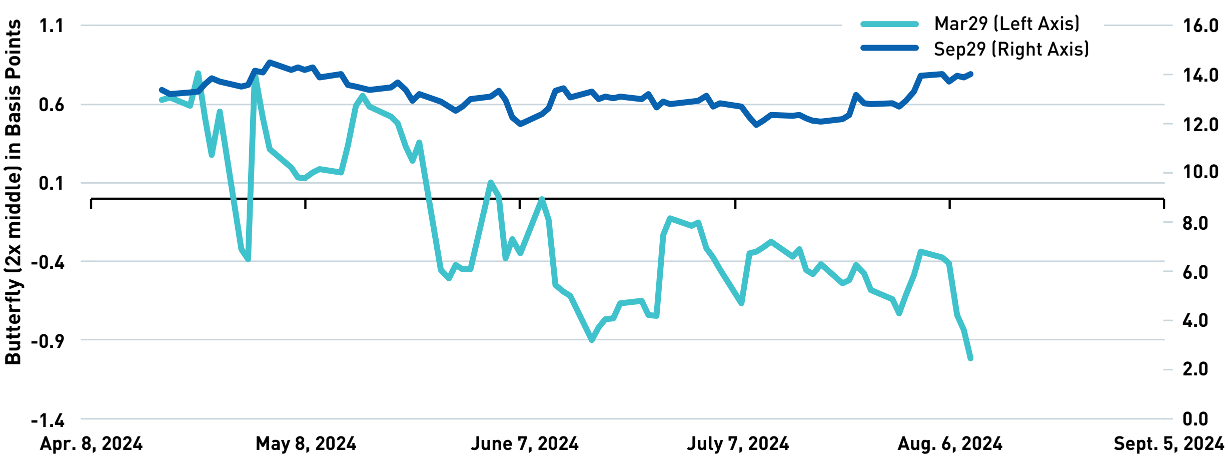
Relative Value of the CTD Bonds

As mentioned above and shown in Figure 3, futures have been generally rich to bonds for much of the last month. This is probably driven by clients who want or need fixed income exposure in derivative form and may, in combination with other price phenomena this quarter, create opportunities.

There is no change of cheapest-to-deliver (CTD) bond for the 10-year or 30-year contracts this quarter but there will be one for the CGZ (2-year) and CGF (contracts) as we roll from September to December. The greatest opportunity seems to exist in the fact that CGF contracts are rich to bonds at the same time as the CTD for the September contract, the March 2029 Canada bond, has also been driven up to 1.5 basis points rich relative to neighbouring maturities, as shown in Figure 5.

FIGURE 5

Mar29 v. Sep29 Swap Spread Butterflies



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

Given the dual richness, some astute managers may be able to:

1. Capitalize on the expensive CTD for the September contract and futures price by selling the CGFU24 contract and buying close maturity bonds in a butterfly structure or,
2. Sell the March 2029 bond in equal duration as neighbour maturity purchases to capitalize on the expected move to cheaper levels once trend models begin to sell the CGFU24 contracts that they have accumulated.

Both ideas require more investigation but may be worthy of the time invested to decide if the trade is the best use of a portfolio manager's risk allocation. The other contracts have no similar opportunity, although they have often traded rich to bonds; their CTD is about fair when compared to other bonds of similar maturity.

Key Metrics & Expectations

Managers with positions will find a summary of the key metrics for each contract this quarter in Figure 6, Figure 8, Figure 9, and Figure 10. We used closing prices on August 9th when December contracts had not yet traded so we used the exchange settlement price which is usually not executable before the roll begins.

CGBU24 to CGBZ24

There is no change in the cheapest-to-deliver bond for the active CGB (10-year) contract this quarter. With almost no duration difference between the September and December contracts, investors can be reasonably confident leaving day orders on the roll if they choose to focus their workday attention on other things.

Trend following models are long this contract, we are certain, as the unexpected volatility in markets pushed fixed income in the direction of profits for models, rather than losses as it did for many similar equity programs. Volatility may have been a risk-off event for all models though and a post-volatility selloff in fixed income may have reduced the risk allocation to CGB contracts. The open interest has fallen by over 50,000 contracts from the early August peak.

We are confident that these portfolios will drive the roll dynamic and that they will be sellers of September contracts to buy December if they don't use the roll to exit existing positions. The contract is rich to bonds once the 3-cent value of the wildcard is included so there is really no reason for any long position to wait. A healthy portion of short CGB positions will probably be taken into delivery (6% of all open interest in June skipped the roll and opted for delivery) so buyers of September may be scarcer than sellers, driving the September contract to cheap levels versus the December contract, or the roll to lower prices.

FIGURE 6

CGB Key Metrics

9-AUG-2024	CGBU24	CGBZ24	DIFFERENCE
Closing Price	123.880	123.690	0.190
Cheapest-to-Deliver (CTD)	CAN 2.500% Dec 2032	CAN 2.500% Dec 2032	No change
CTD Conversion Factor	0.7748	0.7802	
Probable Delivery Date	03-Sep-24	02-Dec-24	
Gross Basis (cents)	-11.2	-63.3	
Net Basis (cents)	-0.6	-7.4	
Implied Repo (to Prob. Delivery)	4.62%	4.74%	
DV01/100 of CTD	7.1	7.1	0.0%
Open Interest	616,908	0	
CTD Outstanding (millions)	21,000	21,000	0
Front OI Multiple of CTD	2.9x	2.9x	

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

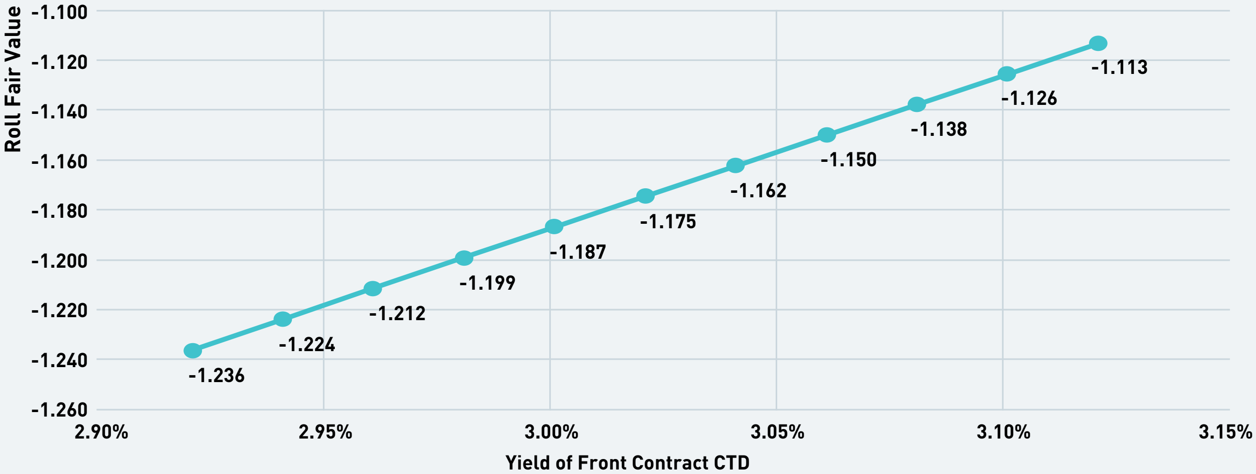
CGFU24 to CGFZ24

The cheapest-to-deliver bond on the 5-year (CGF) contract changes from the September to December contract with the 3.5% September 2029 taking over from the 4% March 2029 which is currently very rich to neighbour bonds. The contract itself is trading a little expensive when compared to fair value as well, a phenomenon which may end quickly when accumulated long positions begin to unwind their September positions and enter December positions.

Speculative models using CGF are probably near full risk but may have had to de-risk models in general given the dismal performance of trend models in other assets recently. Selling pressure on the front contract will probably start early, assuming they roll positions rather than closing, which would be accompanied by similar buying pressure on Z24. Additionally, fair value of the roll will be unstable intraday due to the CTD change between contracts and a 12% duration extension. Be careful leaving standing orders during volatile market days. A 10 basis point intraday move in yields, similar to what occurred on more than one day in early August, can result in a 6 cent change in the fair value of the roll, as shown in Figure 7.

FIGURE 7

CGFU24/CGFZ24 Roll Fair Value v. Rate Level, Aug. 27/24



Source: Author Calculations

FIGURE 8

CGF Key Metrics

9-AUG-2024	CGFU24	CGFZ24	DIFFERENCE
Closing Price	113.000	114.240	-1.240
Cheapest-to-Deliver (CTD)	CAN 4.000% Mar 2029	CAN 3.500% Sep 2029	Change!
CTD Conversion Factor	0.9221	0.8979	
Probable Delivery Date	03-Sep-24	02-Dec-24	
Gross Basis (cents)	-6.7	-33.8	
Net Basis (cents)	-2.3	1.8	
Implied Repo (to Prob. Delivery)	4.62%	4.46%	
DV01/100 of CTD	4.3	4.7	9.0%
Open Interest	166,356	0	
CTD Outstanding (millions)	27,000	20,000	-7,000
Front OI Multiple of CTD	0.6x	0.8x	

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

CGZU24 to CGZZ24

The CTD of the 2-year (CGZ) contract will change from the 4% May 2026 to the 4% August 2026. The DV01 of the contract will extend by over 14%, as usual, due to the longer maturity accompanied by a similar coupon on the CTD for the December contract. For now, overnight rates exceed the coupon on the contract CTD and the basis on the December contract will remain in negative territory. Note that, depending on the action of the central bank, basis on the CGZZ24 could pass from negative to positive during the quarter and short positions would, at the same time, probably choose to deliver at the end of the delivery period rather than the start to collect the positive carry.

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

CGZU24 contracts are reasonably priced, or perhaps a half cent rich to bonds, as of August 9th, but through some of the quarter it tended to trade quite rich relative to bonds in a way that mirrored the relative price of other contracts. We don't think algorithmic models utilize this contract much, but they would be long contracts and managers would probably be looking to sell if they have embraced it in their trading strategies.

FIGURE 9

CGZ Key Metrics

9-AUG-2024	CGZU24	CGZZ24	DIFFERENCE
Settle Price	104.200	104.670	-0.470
Cheapest-to-Deliver (CTD)	CAN 4.00% May 2026	CAN 4.00% Aug 2026	Change!
CTD Conversion Factor	0.9687	0.9687	
Probable Delivery Date	03-Sep-24	02-Dec-24	
Gross Basis (cents)	-3.9	-13.4	
Net Basis (cents)	-0.4	3.9	
Implied Repo (to Prob. Delivery)	4.56%	4.38%	
DV01/100 of CTD	1.7	1.9	14.5%
Open Interest	219,072	0	
CTD Outstanding (millions)	26,000	17,000	-9,000
Front OI Multiple of CTD	0.8x	1.3x	

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

LGBU24 to LGBZ24

We expect the LGB™ (30-year) contract roll will continue in much the same way as the past few quarters. Investors utilize the contract as a near-perfect proxy for long bonds and model portfolios probably aren't involved at all. The roll lacks the urgency observed in other contracts since there is no possibility of early delivery and no wildcard option exists.

The liquidity providers for this contract do an excellent job of keeping it close to fair value versus bonds and we suspect this roll period will be as orderly as other quarters, assuming the central banks don't surprise us.

FIGURE 10

LGB Key Metrics

9-AUG-2024	LGBU24	LGBZ24	DIFFERENCE
Closing Price	168.400	168.750	-0.350
Cheapest-to-Deliver (CTD)	CAN 2.750% Dec 2055	CAN 2.750% Dec 2055	No change
CTD Conversion Factor	0.5437	0.545	
Delivery Date	18-Sep-24	18-Dec-24	
Gross Basis (cents)	-13.9	-54.9	
Net Basis (cents)	-0.2	-6.6	
Implied Repo (to Delivery)	4.52%	4.70%	
DV01/100 of CTD	18.6	18.6	0.0%
Open Interest	1,092	0	
CTD Outstanding (millions)	20,750	20,750	0
Front OI Multiple of CTD	0.0x	0.0x	

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

June Delivery Summary

Contrary to our prediction, given the lower value of wildcard options in the current environment, plenty of managers are continuing to play the wildcard exercise during the delivery period, mostly on CGB (10-year) contracts, but also on CGF (5-year) contracts.

For example, in June, almost 4% of all open CGFM24 (5-year June) contracts at the start of the roll were taken into delivery and almost a third of those appear to have been exercised in a wildcard play, for small profits, on June 3rd. The real story for June delivery was CGB contracts where over 27,000 contracts gave notice on June 3rd, most likely as a wildcard exercise late in the day, for a tidy $1 million of profits since the CTD rallied in price almost 12 cents after the futures setting but before notice of delivery[2] needed to be given. Nearly as surprising is that the largest delivery was, for once, given on the optimal date for this notoriously difficult operation[3]. Figure 11 gives a recap of the deliveries and approximate gains for potential[4] early exercise in June.

FIGURE 11

CGBM24					
QUANTITY	**POSITIVE CARRY REMAINING / CONTRACT**	**WILDCARD OPTION VALUE / CONTRACT**	**CTD EQUIVALENT WILDCARD EXERCISE THRESHOLD**	**CTD 3PM-5PM ΔPRICE**	**THEORETICAL WILDCARD EXERCISE $GAIN**
7,396	0.000	0.041	0.120	0.008	19,775
27,244	0.000	0.040	0.116	0.119	1,090,478
0	0.000	0.039	0.114	0.000	0
0	0.000	0.038	0.110	0.004	0
0	0.000	0.037	0.104	-0.079	0
7	0.000	0.035	0.096	-0.008	0
0	0.000	0.032	0.091	0.048	0
0	0.000	0.031	0.084	-0.024	0
0	0.000	0.028	0.072	-0.090	0
0	0.000	0.024	0.062	-0.021	0
0	0.000	0.021	0.052	-0.032	0
0	0.000	0.017	0.031	0.016	0
0	0.000	0.011	0.000	0.071	0
0	0.000	0.000	0.000	-0.056	0
0	0.000	0.000		-0.079	
0	0.000	0.000		-0.013	
0	0.000	0.000		0.103	
0	0.000	0.000		-0.016	
0	0.000	0.000		-0.056	
2	0.000	0.000		0.024	
34,649	**← 6.0% of OI**				**$1,110,253**

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

2 For a reminder of how the wildcard option works in futures, please refer to "CGB Case Study: Wildcard Option Exercise" published by Montréal Exchange in July 2019.

3 For an explanation of why choosing to deliver early as a wildcard exercise is so difficult, refer to "Wildcard Options: The Option of Maximum Regret" published by Montréal Exchange in August 2022.

4 We reiterate, again, that all statements in this section are speculative. The author has no access to non-public details about the timing of, nor reasons for, delivery.

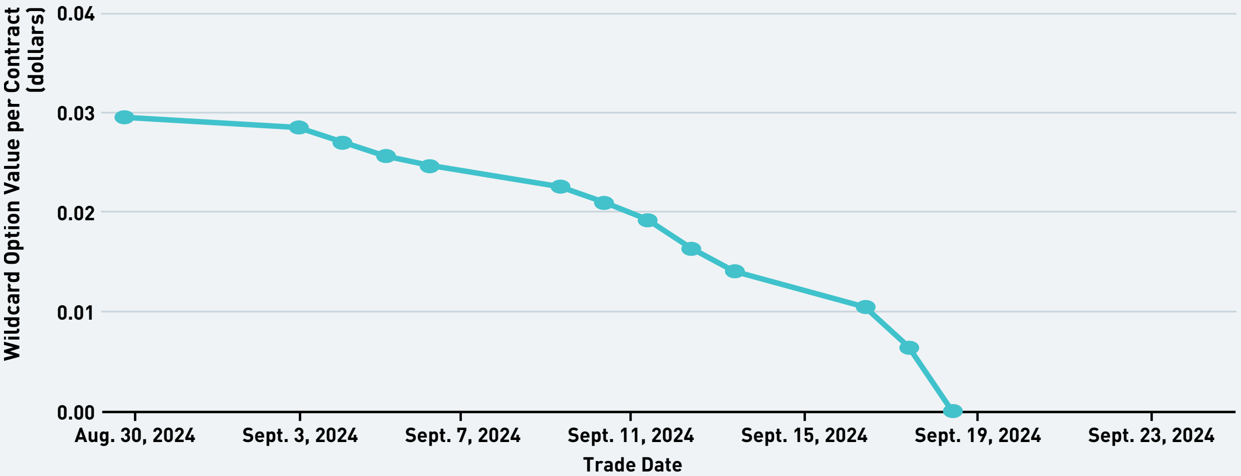
Wildcard Option Value

Although our theory that lower option values and lower potential profits would erode participation in the wildcard option in futures has proven to be incorrect so far, we maintain that falling option values again make the wildcard less attractive[5].

Since we've been quite wrong about this so far, we warn long positions that they could still experience a wildcard exercise (late day notice of delivery) against their position if it remains after first notice. The fair value of the option embedded in the CGBU24 contract has a value of just 3 cents per futures contract which is usually well-reflected in the contract price but hasn't been this quarter. The contract should trade about 3 cents cheap to fair value to reflect the additional value of the wildcard but whether it does or not is difficult to judge now given recent volatility in the basis. If managers have been able to establish long basis positions at attractive levels they will probably take those positions into delivery for a wildcard play.

FIGURE 12

CGBU24 Wildcard Option Value



Source: Author Calculations

5 The admirable $1 million positive P(L) identified in the previous section, notwithstanding.

LOOKING FORWARD & Opportunities

- Nimble traders may find opportunities in CGZZ24 contracts if it crosses from negative basis to positive. Unexpected positive carry for short positions (or long basis positions), should this occur, may not be priced into 2-year contracts during the quarter.
- Cross currency opportunities, especially between Canada and the USA, are available. We still doubt that the Bank of Canada can deviate wildly from the Federal Reserve in policy. Volatile yields and diverging economic performance as well as the expectations for policy from national central banks is probably the most attractive relative value trade in markets today.
- The best opportunity this quarter looks like the cheapest-to-deliver on the CGB (5-year) September contract (CGFU24) which is rich versus neighbour bonds while futures contracts also trade rich to bonds in general. That dual price discrepancy is probably about to end as trend following algorithmic models unwind their accumulated CGFU24 positions.

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.

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