July 2021

MONTRÉAL EXCHANGE

Delivery Drought Ended

Summary

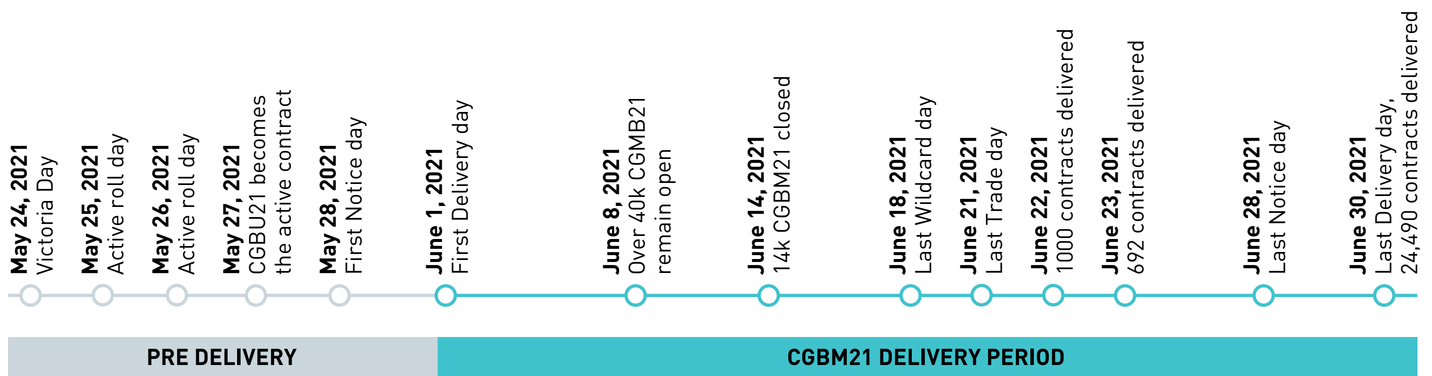
An unusually large quantity of CGBM21 contracts were not closed before the delivery period for June contracts began. Although we can never be certain of investors' motivation, we speculate that some investors were determined to convert their long CGBM21 position to cash bonds by forcing the short into delivery[1]. Although a smart trade that probably reaped a significant profit, we believe the opportunity to reproduce it in future could be limited.

Background

A summary of important dates and events pertinent to the discussion below is shown in Figure 1.

FIGURE 1

CGBM21 Delivery Timeline - Important Dates and Events



Source: Montréal Exchange, Canadian Derivatives Clearing Corporation

In a normal delivery period, only about 1% of the total open interest in 10-Year Government of Canada Bond Futures (CGB™) contracts remains in the old contract after the roll to the new active contract. After delivery begins, there are typically a few closing trades and, sometimes, a small amount of deliveries made until the open interest falls to zero at the end of the contract life. This dynamic roughly holds for the 2-year (CGZ™) and 5-year (CGF™) contracts as well – usually just a percent or two of the maximum open interest for the quarter are ever delivered.

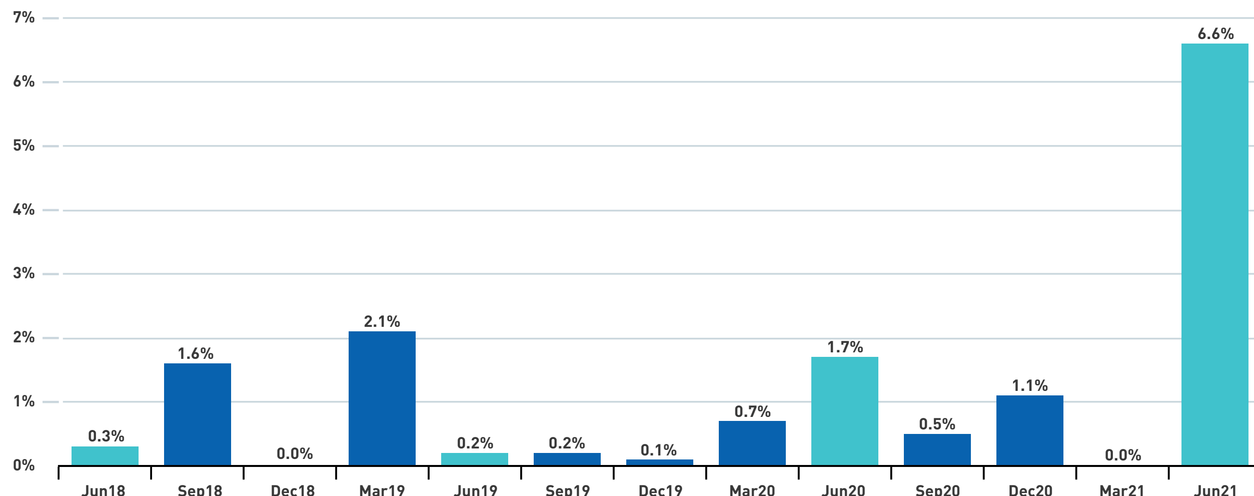
More recently, especially during the low-rate period associated with the COVID-19 pandemic, there have been almost no deliveries made given the low or non-existent optionality, which makes futures a near-perfect substitute for the cheapest-to-deliver bond. This delivery drought ended this quarter as a relatively large number of CGBM21 contracts remained open after first notice and into the delivery period, a fairly uncommon event.

1 The author has no internal knowledge of MX operations nor access to non-public data.

To demonstrate how unusual this is, we show the open interest in CGB contracts about one week into the delivery period; specifically, the percentage of the total open interest in CGB that is from old contracts subject to delivery as opposed to the new active contract that is months away from delivery. As one can easily see in Figure 2, 6.6% of the total[2] open interest in CGB contracts on June 8th, 2021 were old contracts. That figure is far higher than the equivalent amount in any of the last 12 roll periods; it is over triple the next highest (March 2019) delivery period, in fact. Figure 2 shows June contracts in a different colour to easily identify the contract where the annual change in cheapest-to-delivery (CTD) occurred (in light blue); a factor that appears to explain little or nothing about the June 2021 situation.

FIGURE 2

Previous Contract Open Interest as Percent of Total 8th Day of Delivery Month



Source: Montréal Exchange

Possible Reasons to Keep M21 Contracts

There are a few reasons an investor, long or short, may choose to retain a futures contract position into the delivery period.

Mispricing

One reason for an investor to keep old contract positions is if they assess the cost to roll to the active contract as too expensive relative to taking/making delivery. For a long position, they may refuse to sell the M21 if that contract is trading cheap to bonds or if it is trading cheap relative to the U21 contract. The investor could decide to wait for the short to deliver bonds to them; essentially refusing to trade at an unattractive price. The opposite would be true for a short position except that the short controls the timing of the delivery and owns an option on delivery, albeit one that was unlikely to pay off this quarter as we will see below.

This hypothesis does not fit the available evidence in the M21 contract during the roll period or even into the first week of delivery. We calculated the fair value of the M21/U21 roll at -4.28 on June 8th and the quoted (with some volume executed near there) level on June 9th was almost identical. It appears that both long and short positions could close M21 contracts if they chose to do so[3]. Until near the end of trading in the contract, both M21 and U21 contracts were trading roughly fair to bonds given the low Bank of Canada target and repo rates.

Wildcard Option Play

Although it only applies to a short futures position, another reason to keep a position open into the delivery period is to attempt a profitable Wildcard option exercise[4]. In this scenario, a large position in long basis is kept open to speculate that a price increase in the June 2029 bond, the cheapest-to-deliver bond (CTD) for the M21 contract, occurs after the daily price setting for settlement of the futures contract at 3pm but before notice of delivery must be made at 5:30pm. In this scenario, a long futures basis position can sell their delivery tail - the amount of excess bonds they are long versus the amount required to satisfy the delivery terms of the short CGB contract - at an elevated price relative to the closing price of futures contracts and then deliver the remainder of the bonds to close their obligation on the contract.

Although successful Wildcard exercises have occurred in the past, the price of the CTD needs to move enough to justify closing the positive carry-long basis position. In the most recent Roll Update[5], we concluded that the after-close price change required for a successful Wildcard play was too high to justify this type of speculation in CGBM21. The required price increase after 3pm but before 5:30pm each day – it decays daily as positive carry is slowly accumulated in the long basis position – is re-calculated and shown in Figure 3.

2 The sum of the open interest in CGBM21 and CGBU21.

3 But the open interest only declines if both the remaining long and short want to close.

4 For a description of a successful Wildcard trade, please refer to CGB Case Study: Wildcard Option Exercise.

5 Roll Update published in May 2021 by Montréal Exchange.

FIGURE 3

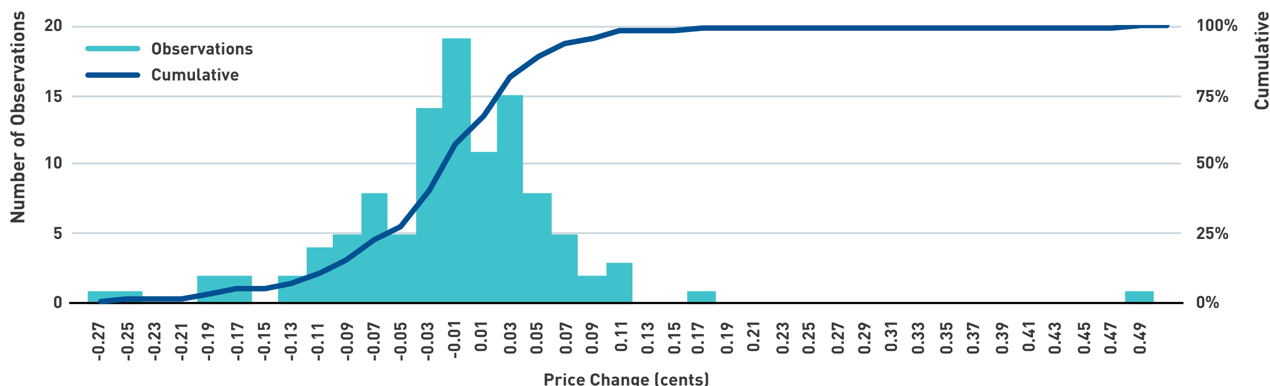
CGBM21 Wildcard Treshold

DATE	REMAINING CARRY ($ PER CONTRACT)	MINIMUM ΔCTD PRICE TO EXERCISE WILDCARD
28-May-2021	205.84	0.668
31-May-2021	198.74	0.645
1-Jun-2021	191.65	0.622
2-Jun-2021	184.55	0.599
3-Jun-2021	163.25	0.530
4-Jun-2021	156.16	0.507
7-Jun-2021	149.06	0.484
8-Jun-2021	141.96	0.461
9-Jun-2021	134.86	0.438
10-Jun-2021	113.57	0.369
11-Jun-2021	106.47	0.346
14-Jun-2021	99.37	0.323
15-Jun-2021	92.27	0.300
16-Jun-2021	85.18	0.277
17-Jun-2021	63.88	0.207
18-Jun-2021	56.78	0.184

Figure 4 shows a histogram of the daily price change between 3pm and 5pm in the CTD bond for CGBM21 up to June 8th in 2021 and shows only a single data point[6] which would have made Wildcard exercise profitable. The average price move is about zero and the Wildcard speculator would have needed more than a 3 standard deviation price move to make this type of speculation successful. A sophisticated investor undertaking long basis trading to try to find profits in the embedded Wildcard option would be aware of the facts stated above and this strategy could have been deemed an inefficient way to allocate risk at that time. A large late day price increase could happen but it is unlikely enough that we are inclined to dismiss[7] this explanation for the remaining high open interest.

FIGURE 4

Canada 2.25% Jun29 Price Change, 3pm to 5pm Since January 1st, 2021



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

In the end, there was no opportunity to exercise the Wildcard option during the delivery period this quarter. There was a somewhat promising 14 cent increase in the price of the CTD between 3pm and 5pm on the 10th of June but that price change was not even half what was needed to justify exercising the Wildcard in CGBM21 on that day. The remaining afternoons were calm with little or no price movement in the June 29s between 3pm and 5pm.

6 February 26th, 2021 –the endpoint and min-reversal of a violent selloff in bonds.

7 Although we do not dismiss it lightly. The embedded option was, after all, roughly free given pricing at the end of May. However, theoretical profits are rarely valued as much as actual profits and a large Wildcard strategy may consume too much risk and balance sheet at most institutions to make the low probability profit worthwhile.

Change in Overnight Target

Perhaps an even less likely speculative strategy is the notion that an investor has kept their M21 contracts as a speculative play on the Bank of Canada overnight target rate being raised before the end of June.

The first reason this is unlikely is that the Bank has been clear that no changes to the target rate are coming anytime soon. The implied repo on all physical delivery futures contracts reflects this, as does the overnight interest rate swap market and the Three-Month Canadian Bankers' Acceptance Futures (BAX™) market. Further, even if the Bank did surprise, it would not be terribly profitable for the short basis position at this point given the small number of days left before delivery; the profit for a surprise 25 basis point move on June 8th would have been about 1.5 cents, or around 0.15 basis points. Once again, these would be slim gains for an active portfolio given the very low probability of the Bank unexpectedly raising rates while the country is still suffering economically from the pandemic closures.

One Side Wants the Bond Position

A more likely reason to continue with an M21 position is that either the long or the short investor wanted the physical bond position. For the long, they may have wanted to obtain cash bonds and, if the reluctance to close positions was driven by the short, they wanted to deliver the bonds. Only one of these needs to be true, of course; the counterparty is forced to keep their position open[8].

One possibility for this scenario is that investors did the popular 5-10 steepening trade earlier in the year in a mix of cash and futures (buy 5-year bonds and sell CGB, the 10-year contract) but unwound the trade entirely in the cash market for some reason. They would have needed to convert their remaining short CGBM21 position to bonds to fully close out their risk and could do that by simply delivering the June 29s, that they purchased in the cash market to close the 5-10 steepener, into their short position in the contract. Of course, this is deep speculation but remains a good way of explaining why some investors may have wanted to make delivery; delivery may have been the least expensive way to close a previous trade or, in a different situation, enter one.

Delivery Squeeze?

We began writing about the possibility of a delivery squeeze in contracts about a year ago when the Bank of Canada began accumulating large positions. Our hypothesis was that the Bank owned a significant portion of the CTD bonds and that the amount available had shrunk dramatically while the open interest in CGB was increasing every quarter. We speculated that short positions could find themselves bidding up the CTD to obtain enough bonds to make good on contracts they had sold; a very unattractive prospect, to say the least. Ironically, we retired this scenario and declared it unlikely in late May after several quarters of no evidence of this happening and an increase in the size of the Bank's lending program. Just days later, potential proof of our original, but now abandoned, hypothesis was evident in the open interest reports.

While we can only speculate on whether the continuing open interest in CGBM21 was driven by the long or short position, one certainty is that the position size on June 8th represented a very large amount of bonds and a large percentage of the total available June 2029 bond. In fact, the 41,592 contracts that remained open on June 8th represented 80% of the issue that was not owned by the Bank of Canada[9], which could have become an issue for the short positions in CGBM21 if bonds were not readily available to borrow in large size from central bank holdings.

As can be seen in the timeline in Figure 1 above, between June 8th and June 21st, the last day of trading for the contract, about 15,000 CGBM21 positions were closed, which reduced the open interest to be delivered to just over 26,000 contracts, representing 50% of all the June 29 bonds not owned by the Bank of Canada.

Shorts without the ability to tap the central bank holdings of this bond could have been forced to bid up the price of June 2029s to obtain enough bonds to meet their delivery obligation by the end of June[10]. Given the potential for a squeeze, or shortage, of June 2029s to deliver, we suggest that the short position in contracts would rather have closed the position and that the reluctance to close open positions in CGBM21 was on the part of the long position. In fact, we observed the M21 contract with a bid but no offer (old contracts are often illiquid) in the days before the last trading day on June 21st, an unscientific observation that helps to confirm this theory.

A possible delivery squeeze scenario would imply that:

1. The reluctant-to-close long position was either a single investor or small group with the same idea; somewhat unlikely[11] given that the 40,000 contracts on the 8th represented over $4 million of DV01 and the amount eventually delivered was still over half of that amount and,

2. The Bank of Canada would fail to lend (or even, potentially, sell) bonds to ensure functioning bond markets even though they have enough holdings of the June 29s to do so.

8 Note that by counterparty we mean a counterparty and not the counterparty as trading will occur where the original counterparty closes his/her position but another investor must step into their trade.

9 12.3 billion par value of the 2.25% June 2029 exists in total. Of those, the Bank of Canada owns 7.069 billion and has loaned out 1.041 billion already.

10 We began writing about this possibility almost a year ago when the Bank of Canada began accumulating large positions. Ironically, we retired this scenario and declared it nearly impossible just a month ago after several quarters of zero evidence that it was happening and an increase in the size of the Bank's lending program.

11 But possible since the maximum allowable position limit in CGB is over 53,000 contracts.

Endgame

The short positions held out until the last minute and just over 26,000 contracts were successfully delivered by June 30th, the majority on the last possible day. On the delivery date, no serious aberrations were apparent in the closing prices of either the CTD of the M21 or the CTD of the U21 contracts, although June 2029s did richen about a basis point, perhaps in anticipation of some kind of delivery trouble.

From what we can ascertain from public data, the long position probably benefited from a richening of the M21 contract versus the active U21 contract during the delivery period. For the most part, the bonds held by the Bank of Canada were not even needed as the repo operations published by the Bank showed only about 40% of the eventual delivery was temporarily obtained via that source.

From closing prices, we can determine that, at the extreme, the CTD June 2029s richened about one basis point versus June 30 bonds (CTD for the CGBU21). A nimble trader managing the position could have captured this basis point quite easily via a few different exit routes, either by closing contracts (earlier in the delivery cycle with decent liquidity) or hedging the position with June 2029s or near neighbour bonds once liquidity disappeared in the expiring contract. A full basis point on this highly leveraged trade represents a trading profit of about $4 million for the long position depending, of course, on timing and what their hedges were.

Looking Forward Beyond CGBM21

The obvious question to ask when looking forward, and especially for investors that are considering short positions in CGB or other physical delivery futures contracts, is whether the events of June 2021 are a one-off or whether they are likely to occur again. A potential squeeze in the CGB cheapest-to-deliver will probably not be possible again for a long time. Consider how the dynamic has changed for the U21 contract:

1. Due to expanded bond issuance during the pandemic, there are over five times as many bonds outstanding in the market after subtracting the Bank of Canada held bonds.
2. There are more bonds in the delivery basket and maturities will no longer be a year apart.
3. If the long position was hedging their position in CGBU21 contracts (very likely given the efficiency of doing so), this trade can only happen the same way when there is a change of the CTD between the contracts; otherwise both contracts would tend to richen equally as the deliverable bond richened. Although CTD changes are going to be more frequent after June 2022, there are going to be way more bonds available for delivery in future.

In light of the above, we consider this a rare scenario created by the confluence of a reduced pool of deliverable bonds and the possibility to hedge a long CGBM21 position with another contract that, importantly, had a different deliverable bond. These two factors will not coexist again for at least the foreseeable future given the abundance of 10-year bonds being issued.

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