

MONTREAL EXCHANGE

Unlocking Liquidity in the Canadian Yield Curve

Context

In response to client requests, the Montréal Exchange (MX) is aiming to increase market participation, activity and liquidity in the 5-year Government of Canada Bond Futures contract (CGF) with the help of a new market making program, in order to develop the midpoint of the Canadian listed yield curve. The MX believes this initiative will offer greater diversity and attract additional trading from a broader set of users to the benefit of the entire market.

The exchange's and the marketplace's support of a liquid listed Canadian Government Bond curve aligns with the Bank of Canada's Financial Stability Department's mandate of promoting transparent, exchange-traded products with Regulatory oversight and backing. The Bank of Canada has declared TMX's Canadian Depository for Securities (CDS) and Canadian Derivatives Clearing Corporation (CDCC) 'systemically' important.

Activity in Related Markets

Given the importance of the activity in the underlying 5-year cash market and the liquidity and success in the neighboring 10-year Government of Canada Bond Futures (CGB), MX truly believes that there is also great potential for a vibrant Canadian 5-year futures market. Here are a few supporting facts:

- Comparable amount of outstanding in the respective delivery baskets for the 5-year and 10-year futures.
- Daily turnover in the 5-year bond market is significantly higher than in the 10-year maturity sector.
- High concentration in the 5-year term and fixed mortgage type in Canada; CGF contract presents itself as a relevant instrument and hedging tool for many large institutions.
- In 2017, Canada Housing Trust issued the maximum permitted amount of new Canada Mortgage Bonds (CMBs) of C\$ 40B¹ of which approximately half is composed of 5-year fixed rate bonds², suggesting a need for an effective hedging instrument such as the CGF.

CGF Advantages

The CGF contract provides multiple benefits to market participants:

- Direct way to manage mid-term interest rate risk and duration (by buying or selling futures)
- Leverage, efficient capital and balance sheet usage
- Added efficiency in hedging Government of Canada bond holdings and in managing risk profile
- Cost-efficient and simple way of "shorting" the Government of Canada bond market, enabling trading on falling or rising Government of Canada bond prices/yields
- Effective tool for yield enhancement of Government of Canada bond portfolio
- Facilitated sales and trading of and efficient access at low cost to the Government of Canada bond market for all market participants in Canada and abroad
- Effective tool to convert a floating rate loan to a fixed term loan
- Efficient way to set the borrowing or investment rate for an anticipated cash flow or commitment
- Added flexibility in trading interest rate differentials or yield spreads between Government of Canada bonds and government bonds of other major countries
- Order book liquidity: anonymous and transparent markets
- Trading flexibility: Block, Exchange for Physicals (EFP) and Exchange for Risk (EFR) transactions available
- Electronic access to a centralized marketplace (central limit order book)
- Operational efficiencies: ease of access through MX's trading and clearing infrastructure
- Centrally cleared, i.e. less counterparty risk than OTC transactions

1. RBC Debt Capital Markets, Canadian Municipalities Primer - Version 2.0, April 2018
2. MBSI, Canada Mortgage Bonds Fact Sheet, February 2018

Trading Strategies & Applications

- Futures invoice spread (swap spread)
- Cash-and-carry trade (basis trading)
- Hedging Canadian bonds (including the CTD)
- Hedging Canadian interest rate risk
- Duration management in fixed income portfolio
- Cross hedging: Hedging a portfolio of Canada Mortgage Bonds (CMBs)
- Relative value trading (on the Canadian and international yield curve)
- Credit spread management
- Replication of bond exposure
- Alternative to mid-dated OTC swap products
- Hedging open swap positions

These strategies have applications in corporate treasury and portfolio management, as well as the management of swaps books, mortgage loans, and asset-liability matching. They represent starting points that may be modified to suit the specific needs and constraints of a wide variety of different users.

Trading Functionalities

- EFP/EFR transactions
- Maturity spread (calendar roll)
- Block transactions
- Inter-group strategies (CGF/CGB)

Inter-Group Strategies (CGF/CGB)

The Inter-Group Strategy (IGS) functionality enables the execution of spread trades between different futures contracts like the 5-year Government of Canada Bond Futures (CGF) vs. the 10-year Government of Canada Bond Futures (CGB) in a single transaction. Participants wishing to transact this spread are able to do so at a predefined ratio of 2x CGF - 1x CGB, thereby greatly reducing execution risk inherent to this trade.

The spread is listed quarterly by the MX's Market Operations Department (MOD) using the SOLA Inter-Group Strategy tool as each quarterly contract commences trading. Should a participant wish to trade the spread using a different ratio, the desired ratio strategy can be created by the MOD. Leg ratios can only be expressed as whole integers.

In addition, the MX's implied pricing algorithm allows outright CGF and CGB quotes to imply orders in the CGF-CGB spread book, and quotes in the CGF-CGB spread book to imply into the respective outright order books. Orders submitted into the spread market are then filled subject to corresponding spread orders in the book, or when orders in the outright CGF and CGB markets both match the defined spread in terms of differential and quantity.

Example of a CGF/CGB strategy

Suppose a participant wishes to execute a strategy to buy 40 CGFU18 contracts at C\$ 117.60 and simultaneously sell 20 CGBU18 contracts at C\$ 136.90. Total leg quantities are +40 for the CGFU18 and -20 for the CGBU18.

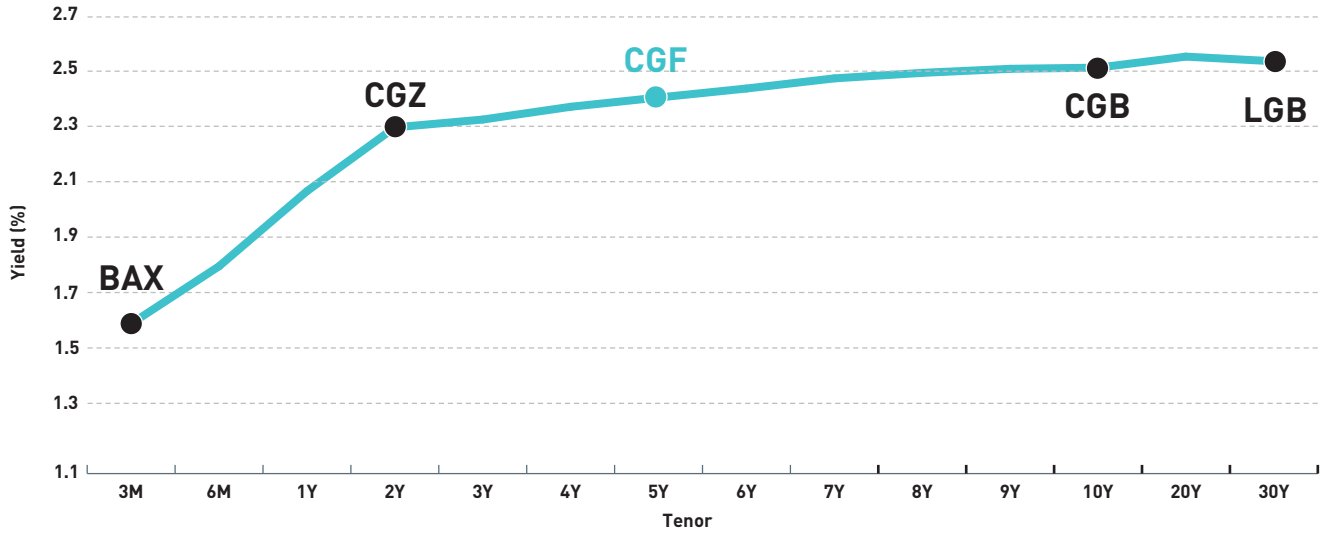
Given the total quantity on each leg, the IGS functionality will reduce these quantities by using the highest common denominator. This breaks down to +2 CGFU18 and -1 CGBU18 when each leg is divided by 20 (the highest common denominator).

This IGS is listed in the following format: **2CGFU18-1CGBU18**

The Bid price of this strategy will be
 = (Listed leg1 ratio x Leg1 price) + (Listed leg2 ratio x Leg2 price)
 = (+2 x C\$ 117.60) + (-1 x C\$ 136.90)
 = C\$ 98.30

This means that if the participant is buying the strategy, he/she is buying CGFU18 and selling CGBU18 as per the listed ratios in the strategy. For every one strategy the participant buys, he/she will be buying 2 CGFU18 and selling 1 CGBU18. To execute the total quantities (40 and 20) on each leg, the participant will have to enter a quantity of 20 strategies. For more information about inter-group strategies (IGS) specifications, please refer to the document available at https://www.m-x.ca/f_publications_en/igs_en.pdf

Canadien Yield Curve (GoC bonds)*



Source: Bloomberg
 * As of 2018-10-15

Contract Specifications³

FUTURES CONTRACT

	CGF	CGB
Bloomberg ticker	XQA Comdty	CNA Comdty
Contract size	C\$100,000	
Notional coupon	6%	
Price Quotation	Per C\$100 nominal value	
Minimum Price Fluctuation	0.01 = C\$10 per contract	
Reporting Level	250 contracts	
Fees	Client: C\$ 0.82 / Firm: C\$ 0.33	
Liquidity Provider Fees (VRP) ⁴	C\$ 0.08	C\$ 0.21
Remaining term to maturity of deliverable bonds	4.5 - 5.5 years	8 - 10.5 years
Block Threshold (# of contracts)	R.H.: 500 E.H.: 100	R.H.: 1 500 E.H.: 350
Block Trade Prescribed Time Delay	R.H.: 15 minutes E.H.: 1 hour	R.H.: 15 minutes E.H.: 1 hour
Cross Trades Time Period	5 seconds	5 seconds
Maximum Order Size on Outright Contract	9 999	9 999
Maximum Order Size on Calendar Spread	9 999	24 999

R.H.: Regular hours; as of 6:00 a.m. ET
 E.H.: Extended hours; from 2:00 a.m. to 5:59:59 a.m. ET

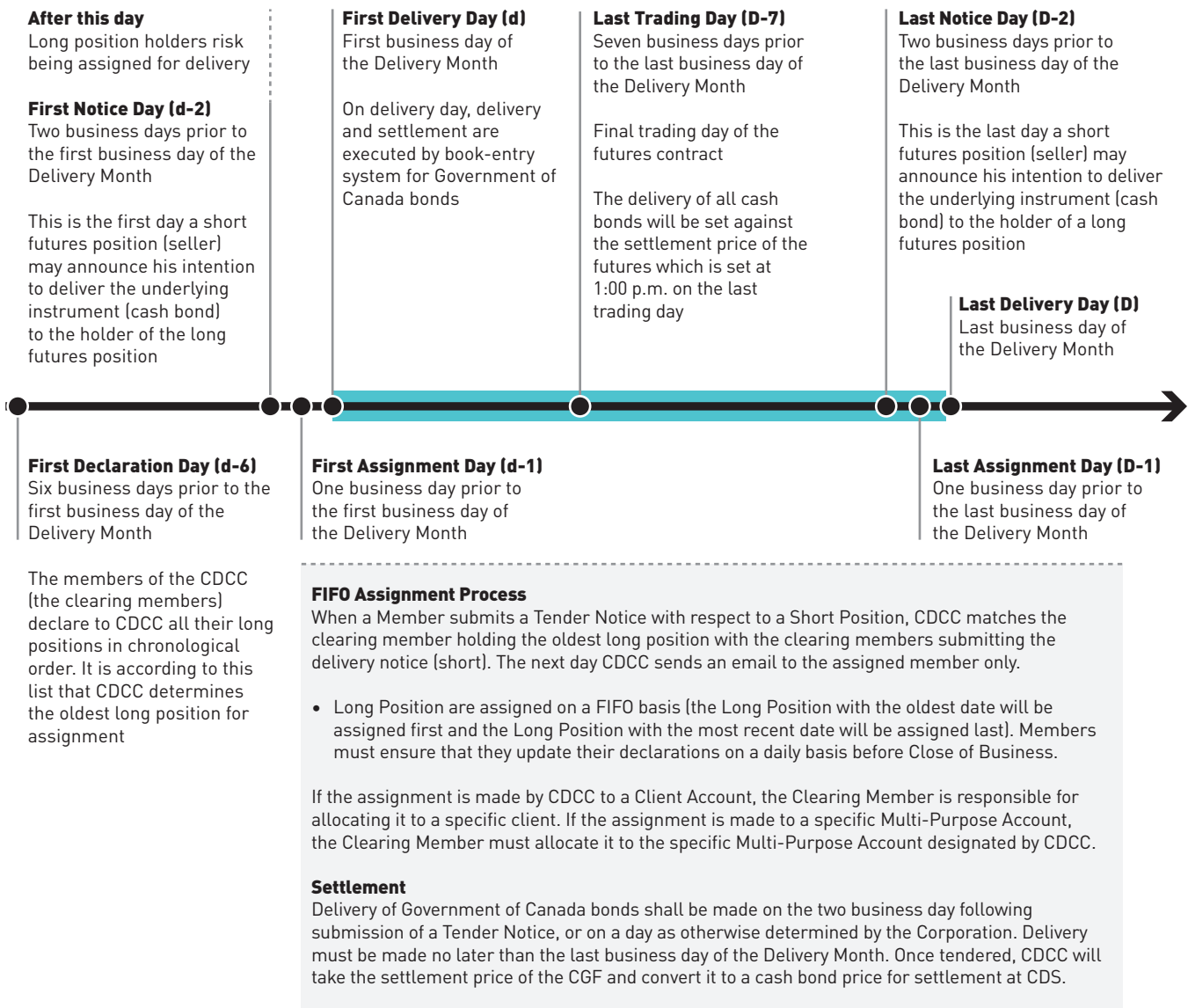
3. As of 2019-07-25 Available online at https://m-x.ca/produits_taux_int_cgf_en.php.
 4. Volume Rebate Program. Subject to conditions. Additional rebates may apply.

Delivery Process

CGF Delivery Standards

Bonds found in the delivery basket consist of Government of Canada Bonds which:

- Have a remaining time to maturity of between 4.5 years and 5.5 years as of the first day of the delivery month, calculated by rounding down to the nearest whole month period;
- Have an outstanding amount of at least C\$ 3.0B nominal value;
- Are originally issued at 5-year Government of Canada bond auctions;
- Are issued and delivered on or before the 15th day preceding the 1st delivery notice day of the contract month



Delivery Month (March, June, September, December)

Identifying the Cheapest-to-Deliver

The bond that has the greatest implied repo rate is the cheapest-to-deliver. The implied repo rate represents the effective rate earned by purchasing a cash bond and selling the futures, with the intention of delivering that particular bond in the future.

Margin Requirements

Margin is made up of two parts: the initial margin and the variation margin. Upon entry into a futures position, the clearing corporation requires that market participants pledge a minimum amount of initial margin. This amount is held by an approved depository on the behalf of the market participant.

$$\frac{\text{Price change}}{\text{Minimum price fluctuation (0.01)}} \times \text{Number of contracts} \times \text{Value of the minimum price fluctuation (C\$ 10)}$$

The calculation of the daily cash settlement is done as follows:

- The day when the contract was entered into: **The difference between the traded price and the daily closing price of the same day.**
- Between any day when an open position is held before the opening of the market and maintained until the close of trading: **The difference between the previous day's closing price and the current day's closing price.**
- The day when a contract is closed by taking a reverse position in the same contract: **The difference between the previous day's closing price and the price at which the position was closed.**

If a contract is opened and closed within the same trading day, the cash settlement is the difference between the price of entry and the exit price.

CGF Rules on Position Limits

15627 - Position Limits for Bond Futures Contracts

Position limits are published on a monthly basis and can be found at https://reg.m-x.ca/en/regulatory/position_limits

Calculation of position limits of the CGF is based on article 15627 of the Rules of the Bourse, which reads as follows:

For all expiration months combined

- A. For all expiration months combined for each designated Government of Canada bond futures contract, the maximum net Long Position or net Short Position which a person may own or control in accordance with article 14157 is equal to half the sum of:
- i. 20% of the total outstanding deliverable bonds of the front contract month; and
 - ii. the greater of:
 1. 4,000 contracts or
 2. 20% of the average daily open interest for all contract months during the preceding three calendar months.

If deemed necessary, the Bourse may apply a different position limit to an approved participant or its client. This position limit may not exceed the position limit determined in accordance with this paragraph a) unless an exemption is granted under article 14157.

For the first contract month

For the first contract month, the maximum net Long Position or net Short Position in each designated Government of Canada bond futures contract which a person may own or control in accordance with article 14157 is the futures contract equivalent of 5% of the total outstanding amount of Government of Canada bonds eligible for delivery for the designated Government of Canada bond futures contracts at the start of trading on the first business day prior to the first delivery notice day of the first contract month.

The position limit for the first contract month becomes effective on the first business day prior to the first delivery notice day of the first contract month.

If deemed necessary, the Bourse may apply a different position limit to an approved participant or its client. This position limit may not exceed the position limit determined in accordance with this paragraph b) unless an exemption is granted under article 14157.

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