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# Agenda

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What does the MX* offer for strip trading?

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Explanation of trade volumes of a 1-year strip strategy

Examples

Demo of a strip in a live vendor feed

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\* MX: Montréal Exchange

# What are strips, packs and bundles?

**A futures strip** is the buying or selling of equally weighted futures contracts in successive delivery months, traded as a single instrument.

- A strip of four consecutive contracts is often referred to as a **pack** (e.g. red pack)
- A strip of two or more Packs is often referred to as a **bundle** (e.g. a 2-year bundle)

Typically used to lock in a specific price for a targeted time-frame.

Futures strips are usually bought/sold in 1-year, 2-year or 3-year combinations.

The Montréal Exchange (MX) trading platform and its Central Limit Order Book (CLOB) currently offers:

**Short-Term Interest Rate Futures strips** for series of BAX® (Three-Month Canadian Bankers' Acceptance Futures) or CRA™ (Three-Month CORRA Futures) contracts, which expire on a quarterly basis.

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# What does the MX offer for strip trading?

The MX strip strategies are quoted on an "average net change" basis from the previous day's settlement price (example later in the presentation).

All contracts in the quarterly BAX® or CRA™ strip are traded simultaneously in a single transaction.

The three years of quarterly BAX® or CRA™ expirations provide market participants with six standardized strips per product:

| | |
|---|---|
| **1-year strip** (4 contracts) | For closest 4 expiries (white), 4 mid expiries (red), or 4 furthest expiries (green) |
| **2-year strip** (8 contracts) | 4 closest expiries (white) + 4 mid expiries (red), or 4 mid expiries (red) + 4 furthest expiries (green) |
| **3-year strip** (12 contracts) | All 12 expiries for BAX® or CRA™ contracts |

# What does the MX offer for strip trading?

**The MX can offer other non-standard strip denominations such as:**

- 6-month (2 contracts)
- 18-month (6 contracts)
- 30-month (10 contracts)

should there be client demand for more time granularity.

The MX also offers **inter-group strip spreads** between the BAX® and CRA™ Futures where clients can buy all 4 contracts of a 1-year BAX® strip and sell all 4 contracts of a CRA™ strip having same contract months for all 4 expiries.

# The MX strip symbology



| Characters | |
|---|---|
| **First 3** (letters) | Class Symbol of all strip components |
| **4th** (letter) | Reference Month code of the Anchor contract of the strip |
| **5th - 6th** (numeric) | Reference year of the Anchor contract of strip; e.g. 21 = 2021 |
| **7th - 8th** (numeric) | Total number of contracts in the strip; e.g. 1-year = 4 2-year = 8 3-year = 12 |

# The MX strip symbology

## Inter-group strip spread between CRA™ and BAX®:



| Characters | |
|---|---|
| **First 3** (letters) | Class Symbol of the CRA™ strip components |
| **4th** (letter) | Month Code of the Anchor contract of the CRA™ strip |
| **5th - 6th** (numeric) | Reference year of the Anchor contract of the CRA™ strip; e.g. 20 = 2020 |
| **7th - 8th** (numeric) | Total number of contracts in the first strip; e.g. 1-year = 4 2-year = 8 3-year = 12 |
| **9th - 16th** | Is the same as the 1st - 8th characters but for the BAX® strip |

# Pricing & rounding of a strip

**Real order pricing and trades in the CLOB:**

The real pricing algorithm will allow the input and matching of orders via First in First out (FIFO) standard matching algorithm the same as any other MX derivative where:

**Strip Trade Price**

= Net Change that will be applied to all contracts in the strip

If a strip trades in the CLOB, the matching engine will assign the traded price between the Previous Day's Settlement for the strategy strip trade price, and will price each contract using a contract price algorithm:

The first contract uses its previous Settlement +/- Average Net Price (Strip Trade Price / "n" number of contracts), and then the formula is repeated for each contract.

# Pricing & rounding of a strip

**Implied order pricing (derived from leg CLOB):**

The implied pricing algorithm will generate Implied Market Bid/Ask Orders on the BAX® and CRA™ strips based on their outright contracts.

These are called the **Implied Inbound Orders**.

The Implied algorithm will also generate Implied Market Bid/Ask Orders on the others outright underlying constituents with the BAX® and CRA™ strip orders.

These are called the **Implied Outbound Orders**.

# Pricing & rounding of a strip

**Implied order pricing (derived from leg CLOB):**

If the order trades against an implied price, trades executed through a strip order will not have the same variation on each leg component.

Conversely, in a real order pricing scenario, the variation will be the same when an order trades against an opposing order.

All strip orders that trade implied will have the trade price reported on execution notices on all post-trade feeds and reports at the strategy instrument level, and will be rounded to the nearest 1/10th cent value. It therefore may not reflect the actual trade price with all decimals.

# Strip pricing example:
## Implied in (1)

**A 1-year white quarterly BAX® strip implied in**

| Contract | Bid size | Bid price | Ask price | Ask size | Settlement price | Net change bid | Net change ask |
|----------|----------|-----------|-----------|----------|------------------|----------------|----------------|
| BAXZ20 | **150** | 98.75 | 98.755 | 350 | 98.73 | 0.02 | 0.025 |
| BAXH21 | 300 | 98.765 | 98.77 | **250** | 98.72 | 0.045 | 0.05 |
| BAXM21 | 275 | 98.74 | 98.745 | 325 | 98.69 | 0.05 | 0.055 |
| BAXU21 | 175 | 98.715 | 98.72 | 415 | 98.66 | 0.055 | 0.06 |
| | | | | | Sum price | 0.17 | 0.19 |
| | | | | | Average price (/4) | **0.0425** | **0.0475** |

**Implied price disseminated**

| BAX strip | Bid size | Bid price | Ask price | Ask size | Implied bid size | Calculated implied bid* | Calculated implied ask* | Implied ask size |
|-----------|----------|-----------|-----------|----------|------------------|-------------------------|-------------------------|------------------|
| BAXZ2004 | 50 | 0.04 | 0.05 | 50 | **150** | **0.042** | **0.048** | **250** |

1. Vendor feed for BAX® only supports 3-decimals so it is rounded, but actual trades and allocations send to the clearinghouse will have the real values
2. Disseminated prices are rounded down for the bid price and rounded up for the ask price

# Strip pricing example:
## Implied in (2)

> **Order: Sell 100 BAXZ2004 @ MARKET: Filled at 0.0425, Broadcasted on the HSVF Feed and Post Trade at 0.043\***

## Leg fill prices

| Contract | Trade volume | Implied trade price | Settlement price | Contract price | Trade price rules |
|---|---|---|---|---|---|
| BAXZ20 | **100** | 0.0425 | 98.73 | **98.75** | |
| BAXH21 | **100** | 0.0425 | 98.72 | **98.765** | Actual Contract Bid Price |
| BAXM21 | **100** | 0.0425 | 98.69 | **98.74** | (Hit Bid via Implied) |
| BAXU21 | **100** | 0.0425 | 98.66 | **98.715** | |
| **Total volume** | **400** | | | | |

**Total Trade Volume is =**
**400 for the White Pack** which is
100 per each contract expiry

\* Vendor feed for BAX® only supports 3-decimals so it is rounded, but actual trades and allocations send to the clearinghouse will have the real values

# Strip pricing example:
## Strategy vs strategy (1)

| Contract | Bid size | Bid price | Ask price | Ask size | Settlement price | Net change bid | Net change ask |
|----------|----------|-----------|-----------|----------|------------------|----------------|----------------|
| BAXZ20 | **150** | 98.75 | 98.755 | **250** | 98.73 | 0.02 | 0.025 |
| BAXH21 | 300 | 98.76 | 98.77 | 350 | 98.72 | 0.04 | 0.05 |
| BAXM21 | 275 | 98.74 | 98.75 | 325 | 98.69 | 0.05 | 0.06 |
| BAXU21 | 175 | 98.71 | 98.73 | 415 | 98.66 | 0.05 | 0.07 |
| | | | | | Sum price | 0.16 | 0.205 |
| | | | | | Average price (/4) | **0.04** | **0.05125** |

## Real book and implied price disseminated

| BAX strip | Bid size | Bid price | Ask price | Ask size | Implied bid size | Calculated implied bid* | Calculated implied ask* | Implied ask size |
|-----------|----------|-----------|-----------|----------|------------------|-------------------------|-------------------------|------------------|
| BAXZ2004 | **200** | **0.045** | 0.055 | 50 | **150** | **0.04** | **0.0513** | **250** |

1. Vendor feed for BAX® only supports 3-decimals so it is rounded, but actual trades and allocations send to the clearinghouse will have the real values
2. Dissemindated prices are rounded down for the bid price and rounded up for the ask price

# Strip pricing example:
## Strategy vs strategy (2)

**Order: Sell 100 BAXZ2004 @ MARKET: Filled at 0.045**

## Leg fill prices

| Contract | Trade volume | Implied trade price | Settlement price | Contract price | Trade price rules |
|----------|--------------|---------------------|------------------|----------------|-------------------|
| BAXZ20 | **100** | 0.045 | 98.73 | **98.775** | |
| BAXH21 | **100** | 0.045 | 98.72 | **98.765** | |
| BAXM21 | **100** | 0.045 | 98.69 | **98.735** | (Prev Settlement Price) + Strip Trade Price |
| BAXU21 | **100** | 0.045 | 98.66 | **98.705** | |
| **Total volume** | **400** | | | | |

**Total Trade Volume is =**
**400 for the White Pack** which is 100 per each contract expiry

# Limitations to strip pricing
## (Real + Implied)

A STIR strip calculation is based on the previous day's settlement price and is valid for the full trading session. Therefore, orders executed after the settlement period*, whether implied or not implied, will continue to be based on the previous day's settlement price and not the new settlement price.

Duration order types, such as GTC and GTD, will be accepted on strips and will not be automatically cancelled by the system at the end of the trading day. If the GTC or GTD order is matched on a subsequent day, the leg prices will be set according to the prevailing previous day settlement price at the time the order is matched, not the one that was in effect when the strategy order was originally entered.

*See M-X.ca website for market hours and early closure times

# Live Demo from MX Sola Market Watch

**Results for Bid Z20 Pack =**
Z20 (99.52-99.525) + H21(99.525-99.53) +
M21(95.525-99.52) + U21 (99.52-99.515) =
0.00 SUM, divided by 4 =
0.00 broadcasted to the BID of the Pack

**Results for Ask Z20 Pack =**
Z20 (99.525-99.525) + H21 (99.53-99.53) +
M21(95.53-99.52) + U21 (99.525-99.515) =
0.02 SUM, divided by 4 =
0.005 broadcasted to the ASK Pack

# Example of MX strips in Trading Technologies



| Market Grid | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SIMULATION** | | | | | | | | | | | | |
| Contract | Description | NetChg | WrkBuys | BidQty | Bid | Ask | AskQty | WrkSells | Last | Vol | Settle | |
| BAX Dec20 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 880 | 0.0000 | 0.0050 | 2191 | | | 0 | | |
| BAX Dec20 8mo Strip | Three-Month Canadian Bankers' Acceptance | | | 148 | -0.0050 | 0.0050 | 72 | | | 0 | | |
| BAX Dec20 12mo Strip | Three-Month Canadian Bankers' Acceptance | | | 12 | -0.0100 | 0.0050 | 58 | | | 0 | | |
| BAX Mar21 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 880 | -0.0050 | 0.0050 | 1332 | | | 0 | | |
| BAX Jun21 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 148 | -0.0050 | 0.0050 | 1332 | | | 0 | | |
| BAX Sep21 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 148 | -0.0050 | 0.0050 | 423 | | | 0 | | |
| BAX Dec21 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 148 | -0.0050 | 0.0000 | 72 | | | 0 | | |
| BAX Mar22 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 12 | -0.0100 | 0.0000 | 58 | | | 0 | | |
| BAX Jun22 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 12 | -0.0100 | 0.0000 | 58 | | | 0 | | |
| BAX Sep22 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 12 | -0.0150 | -0.0050 | 58 | | | 0 | | |
| BAX Dec22 4mo Strip | Three-Month Canadian Bankers' Acceptance | | | 12 | -0.0150 | 0.0000 | 58 | | | 0 | | |

Tab 1

# Example of MX strips in Fidessa ION

# Questions?

# Send to:
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