



MONTRÉAL EXCHANGE

October 2023

So Long BAX Model. You've Had A Good Run.

The Great Financial Crisis of 2008 laid bare the destabilizing potential of basis risk between Canadian Bankers' Acceptance rates and/or Three-Month Canadian Bankers' Acceptance Futures (BAX) and a truly risk free rate. After 15 years and much effort, market inertia has finally been overcome and it is time to replace BAX contracts with the ascendant Three-Month CORRA Futures (CRA) contracts in various models.

From work published on Montréal Exchange (MX) almost six years ago as well as January of this year:

"The challenge when modeling Bank of Canada rate change probabilities from BAX is that the underlying instrument is not equivalent to the overnight rate set by Bank of Canada policymakers but instead carries a time-varying risk premium which must be accounted for in the model."

– [Calculating Rate Hike Probabilities from BAX Contracts](#), Montréal Exchange, October 2017¹.

"...we expect CORRA (Canadian Overnight Repo Rate Average) futures will eclipse, or nearly eclipse, BA (90-day Bankers' Acceptance) futures by year end 2023."

– [2023: The Future of Futures](#), Montréal Exchange, January 2023.

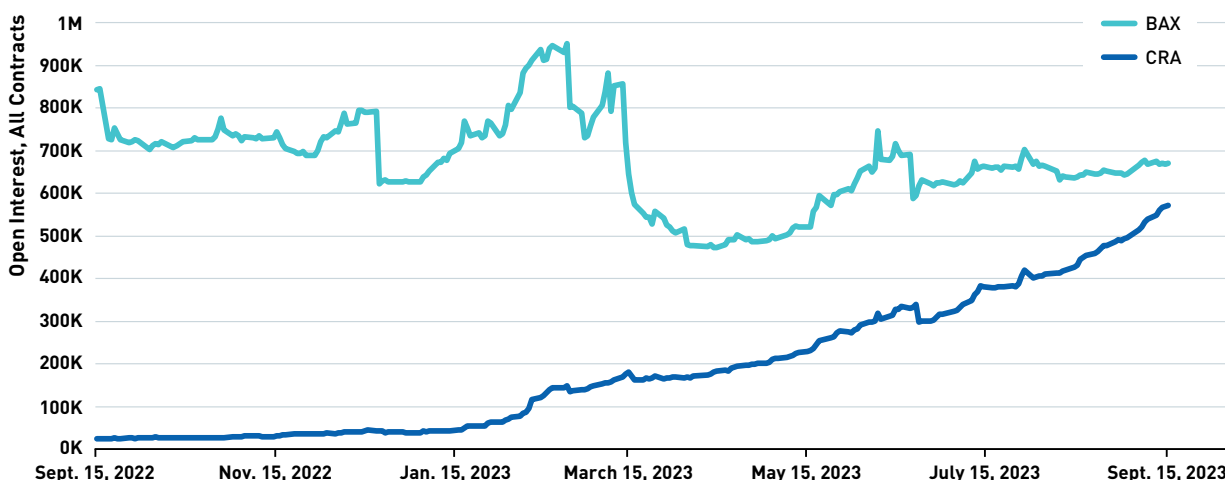
In the first citation, we noted, and devoted nearly half the discussion in the article to, the problematic notion that BAX contracts carry a risk premium and cannot produce an accurate expectation for Bank of Canada overnight target rates without an adjustment for said risk premium. The second citation notes only our expectation that, during 2023, BAX would fade from its perch as the most-traded short-term interest rate product in Canada and be replaced by CORRA futures. That time is now upon us and models should be changed to incorporate CRA (3-month CORRA) contracts in lieu of BAX (90-day Banker's Acceptance).

CRA Ascending

As of September 15th, the day we conducted all the following analyses, the open interest for all CRA contracts is fast approaching the open interest for all BAX contracts, as shown in Figure 1. In fact, this was virtually inevitable at some point this year as swap dealing desks have slowly ceased to quote, trade, and hedge against CDOR (Canadian Dollar Offered Rate) in favour of CORRA (Canadian Overnight Repo Rate Average). BAX contracts will, in fact, fall to zero open interest by the end of June 2024 as all remaining open interest will be converted into CRA contracts.

¹ Please note that the article is no longer available on the MX website.

FIGURE 1
BAX v. CRA, 18 months



Source: Montréal Exchange

With the ascent of CRA contracts, daily trading volume and liquidity has now reached the point where it will soon, or may have already, surpassed BAX in terms of price discovery and reaction to new information in the market. As such, it is now, or soon will be, the most information-laden and useful fixed income instrument for determining short-term interest rate expectations.

Advantages of CRA over BAX and OIS

Refreshingly, the new CRA contract is considerably simpler and easier to use than BAX contracts were in terms of model building and calculating implied central bank policy moves. As mentioned in the opening paragraphs, adjusting for the time-varying risk premium embedded in BAX contracts to arrive at a risk-free rate was problematic and time-consuming. CRA contracts, on the other hand, are a direct measure of CORRA expectations in the future and no such adjustment for risk-premium needs to be made. The CORRA rate is, on average, less volatile and closer to the Bank of Canada’s target for the overnight than CDOR, making it a great trading play on interest rate expectations.

Further, CRA contracts are available to every market participant², price discovery occurs constantly and in real-time on the Montréal Exchange during long trading hours, and trade anonymously and electronically – all the same advantages that BAX had versus the over-the-counter Overnight Interest Rate Swap (OIS) market. The OIS market still exists, and will continue to be useful in certain situations, but it lacks the same transparency and requires considerably more preparation time to trade as well as additional documentation between counterparties. Lack of transparency and a market that excludes some smaller, but important, market participants means CRA contracts will become, and remain, the new gold standard for highly liquid short-term interest rate hedging.

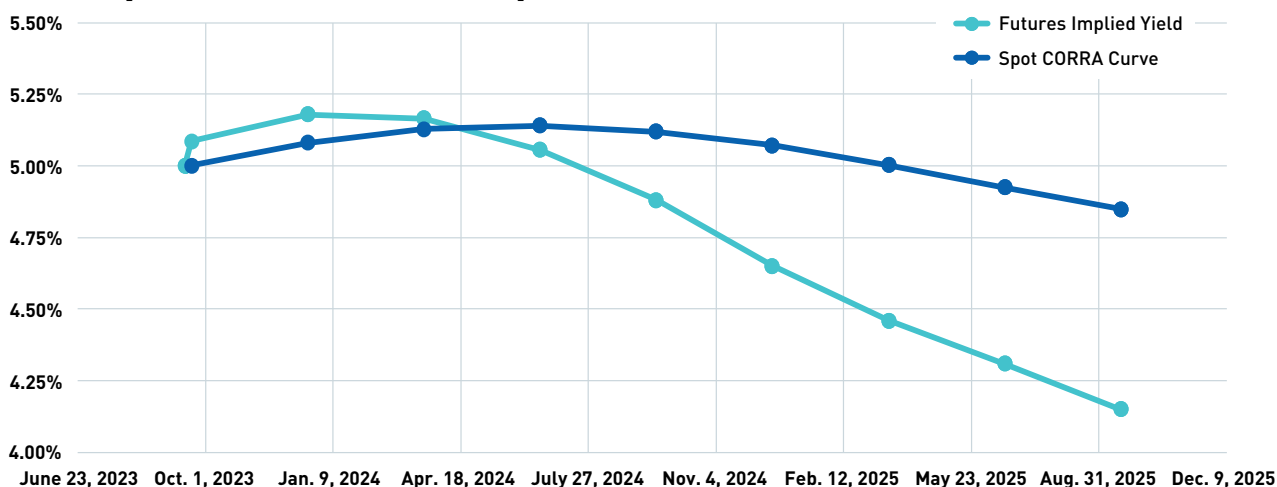
New CRA Bank of Canada Fixed Announcement Date Model

As with BAX in the past, but now with CRA and without the need to estimate a term structure of Bankers’ Acceptance risk premia, we can construct a model to calculate the implied target rate for the Bank of Canada for the period between each of their fixed announcement dates.

First, we can create a spot CORRA curve from the forward yields implied by the first seven or eight contracts – enough to arrive at about two years of spot rates for the yield curve. The CRA implied yields and resulting spot curve are shown in Figure 2.

² Every market participant, large and small, whose investment guidelines include exchange-traded futures contracts, that is.

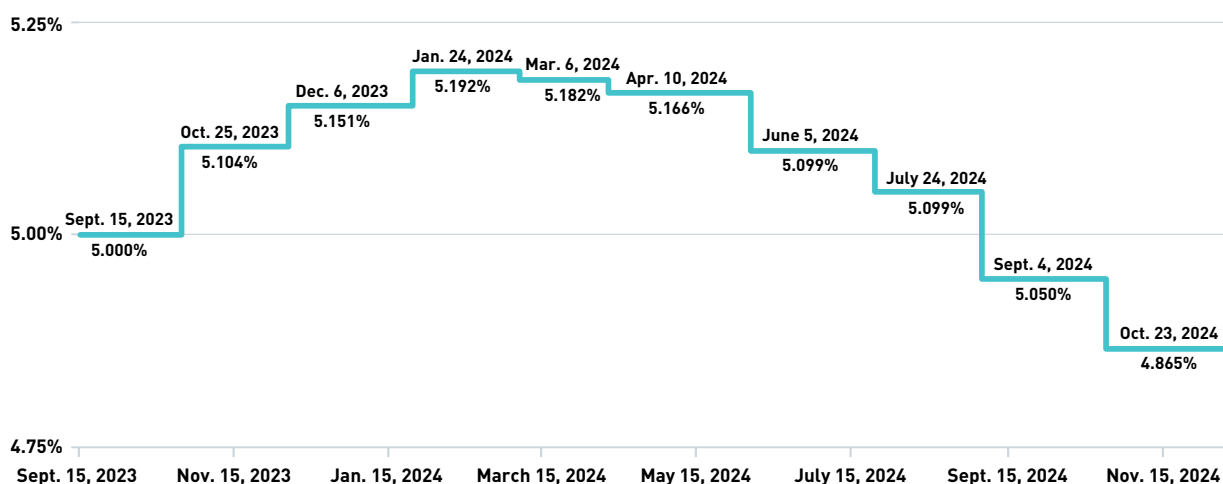
FIGURE 2
CRA Implied Forward Yields & Spot Curve



Source: Montréal Exchange

With a spot curve, we can then calculate the forward rates implied between the known³ announcement dates on which the Bank of Canada normally makes their adjustments to the target rate. Although the target rate can be changed at any time, most policy changes will come on the announcement dates. Our CRA-driven estimate of implied target rates on September 15th is shown in the step-chart in Figure 3 where target rate is predicted to peak at 5.187% (a high probability of a further 25 basis point increase) and then begin an extremely slow decline.

FIGURE 3
CRA Implied Forward Rates
Bank of Canada Fixed Announcement Dates



Source: Montréal Exchange

Finally, we can examine the change between two states of overnight interest rates and calculate the probability for a change in target rate between the two states. For example, in Figure 4 we calculate that, given the implied forward rate between October 25th and December 6th, there is a 41% probability, as established by the September 15th CRA contract pricing, of an increase in the target rate from 5% to 5.25%. If an investment manager thinks the probability of a further increase is higher than 41%, they could profit by selling the December 2023 contract (CRAZ23).

³ Or we could estimate the announcement dates if the Bank of Canada has not yet published the schedule.

FIGURE 4

| FAD | SPOT RATE | FORWARD RATE | DESCRIPTION |
|-----------|-----------|--------------|---|
| 25-Oct-23 | 5.031% | 5.104% | 41% probability of a move in overnight rate from 5.00% to 5.25% |
| 6-Dec-23 | 5.068% | 5.151% | 60% probability of a move in overnight rate from 5.00% to 5.25% |
| 24-Jan-24 | 5.099% | 5.192% | 77% probability of a move in overnight rate from 5.00% to 5.25% |
| 6-Mar-24 | 5.122% | 5.182% | 73% probability of a move in overnight rate from 5.00% to 5.25% |
| 10-Apr-24 | 5.132% | 5.166% | 66% probability of a move in overnight rate from 5.00% to 5.25% |
| 5-Jun-24 | 5.139% | 5.099% | 39% probability of a move in overnight rate from 5.00% to 5.25% |
| 24-Jul-24 | 5.133% | 5.050% | 20% probability of a move in overnight rate from 5.00% to 5.25% |

Notes on CRA versus BAX

While CRA and BAX futures have many similarities, some participants may be unfamiliar⁴ with some aspects of CRA contracts.

Like BAX, CRA contracts are a 90-day interest rate but trade on price on Montréal Exchange. The implied interest rate is simply 100 minus the price. Also like BAX, the product is cash-settled and each basis point is equal to \$25 per contract. Twelve quarterly contracts are listed for trading, with liquidity more often concentrated in the front 8 contracts.

Unlike BAX, which is a simple 90-day interest rate and cash settled at the end of trading for the quarter to the published CDOR rate, CRA contract settlement is based on the compounded daily CORRA rate over a reference quarter; a method identical to SOFR (Secured Overnight Financing Rate) contracts in the United States, and which references a realizable rate in markets, unlike the CDOR rate to which BAX is settled.

And Finally

Briefly, participants may also note that:

- Until the end of June 2024, spread trades between CRA contracts, a true risk-free rate, and BAX contracts may be utilized as a relative value tool to profit from risk-premia changes in BAX⁵.
- All BAX contracts expiring after June 2024 will be converted to CRA contracts using a specific, published, methodology⁶. We doubt many market participants will submit their highly leveraged positions to a period of constrained liquidity in BAX contracts heading into the last months of existence of the product, so we expect almost all BAX open interest will be closed or traded into CRA positions well in advance of the end of June 2024.
- Just like BAX contracts have been used for decades, CRA contracts can be used to construct curve trades to benefit from steepening or flattening of the CORRA curve.
- As one CRA contract usually covers two Bank of Canada Fixed announcement dates, the model presented above assumes that no rate change was made on the first announcement date when calculating the implied probability for the second announcement date.

⁴ All the contract specifications and the details of the interest rate benchmark transition can be found on the Montréal Exchange [microsite for CORRA](#).

⁵ [Advisory Notice A23-005](#) - Inclusion of BAX/CRA Inter-Commodity spreads on Bloomberg and Refinitiv.

⁶ [Advisory Notice A23-007](#) - MX published an initial Fallback plan for BAX including conversion expectations and is expected to formalize a conversion date in Q4-2023.



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.

For more information

irderivatives@tmx.com

m-x.ca/futures

Copyright © 2023 Bourse de Montréal Inc. All rights reserved. Do not copy, distribute, sell or modify this article without Bourse de Montréal Inc.'s prior written consent. This information is provided for information purposes only. The views, opinions and advice provided in this article reflect those of the individual author. Neither TMX Group Limited nor any of its affiliated companies guarantees the completeness of the information contained in this publication, and we are not responsible for any errors or omissions in or your use of, or reliance on, the information. This publication is not intended to provide legal, accounting, tax, investment, financial or other advice and should not be relied upon for such advice. The information provided is not an invitation to purchase securities listed on Montreal Exchange, Toronto Stock Exchange and/or TSX Venture Exchange. TMX Group and its affiliated companies do not endorse or recommend any securities referenced in this article. BAX, CRA, Montréal Exchange and MX are the trademarks of Bourse de Montréal Inc. TMX, the TMX design, The Future is Yours to See., and Voir le futur. Réaliser l'avenir. are the trademarks of TSX Inc. and are used under license.