

MONTREAL EXCHANGE

Predicting a change in the Canadian overnight repo rate target

We can measure market expectations for the Bank of Canada's (BoC) overnight repo target rate using the rate implied by the CRA futures contract. The CRA final settlement price is directly influenced by the BoC's overnight repo target rate decision since the underlying benchmark rate (CORRA), which measures the average cost of Canadian dollar overnight general collateral funding, closely tracks the overnight target rate on a daily basis.

Suppose that we are October 16, that the next announcement date for the BoC policy is fixed on October 28 and that an increase of 25 basis points for the remainder of year is expected by the market to happen on that date.

Probability theory can be used to determine the likelihood that the BoC will change the overnight repo target rate on October 28, based on market expectations. The price of the September contract, for which the Reference Quarter encompasses the BoC next announcement date, can provide useful information on the probability of such overnight target rate movement.

Strategy

Data

Days between the start of the Reference Quarter for the September contract and today	30
Days between today and the next BoC announcement date	12
Days between the next BoC announcement and the end of the Reference Quarter for the September contract	49
Current geometric average since last announcement (and expected to remain constant until the BoC announcement)	0.50%
Expected target rate on BoC announcement date	0.75%
Current CRA futures price	99.38
Current CRA implied geometric average rate	0.62%

Compute the probability	Formula	Results
Compute the probability that the target rate will increase to 0.75% from 0.50%	$0.62\% = \left[\frac{1+0.50\%}{365} \right]^{42} * (1 + (P * 0.75\% + (1-P) * 0.50\%) / 365)^{49} - 1 \left[\frac{365}{91} \right]$	
Solving the equation, we find P: the CRA futures price implied that there is an 88.79% probability that the BoC will raise the overnight target repo rate to 0.75%		88.79%

Results

The price of the CRA front delivery contract month implies that there is a probability of 88.79% that the Bank of Canada will increase the overnight target rate by 25 basis points.

Reference Quarter for CORRA futures contracts are based on International Monetary Market (IMM) dates. For a given contract, interval from (and including) the 3rd Wednesday of the Contract Reference Month, to (and not including) the 3rd Wednesday of the Delivery Month.

Contract Reference Month:

For each contract, the Contract Reference Month is the month in which the Reference Quarter begins.

Delivery Month:

For each contract, the Delivery Month is the month in which the Reference Quarter ends.

Example for a June contract:

The Reference Quarter starts on IMM Wednesday of June, the Contract Reference Month, and ends with Termination of Trading on the first business day before IMM Wednesday of September, the contract Delivery Month.