

## CALCULATION OF THE CONVERSION RATIO IN A DURATION NEUTRAL SWITCH OPERATION

The purpose of this note is to describe how the Bank of Canada, on behalf of the Minister of Finance, calculates and uses the conversion ratio in a duration neutral switch operation.

The conversion ratio (CR) represents the ratio of price sensitivities to yield movements of two bonds and determines the par value amount of the replacement bond to exchange for a given amount of a targeted repurchase bond:

$$CR = \frac{Price_{repurchase-1bp} - Price_{repurchase+1bp}}{Price_{replacement-1bp} - Price_{replacement+1bp}}$$

where  $Price_{repurchase-1bp (+1bp)}$  is the price of the repurchase bond using a given yield-to-maturity minus (plus) 1 basis point, and  $Price_{replacement-1bp (+1bp)}$  is the price of the replacement bond using a given yield-to-maturity minus (plus) 1 basis point.

In order to be able to calculate the conversion ratio for each targeted bond, the Bank of Canada uses the best offer (highest yield spread) to calculate the price of the repurchase bond. The price of the replacement bond used is the one that is released on the enter tenders page of the *Communication, Auction and Reporting System* (CARS) prior to the submission deadline.

The par value amount of the replacement bond ( $Par_{replacement}$ ) exchanged equals the par value amount of the bond being offered ( $Par_{repurchase}$ ) multiplied by its conversion ratio.

$$Par_{replacement} = Par_{repurchase} \times CR$$

The conversion ratio used is to 4 decimal places. The par value amount of replacement bonds issued is rounded to the thousands of dollars.