L|G|B™

Hedging Open Swap Positions

A swap trader holds a plain-vanilla interest rate swap for which he receives a fixed rate of 5.06% semi-annually for 30 years and pays a floating 3-month bankers' acceptance rate on a notional amount of $10 million. The trader can realize a profit of 15 basis points on the fixed-rate portion of the swap if the swap position can be immediately offset at the current swap rate of 4.91%. However, no counterparty with a satisfactory credit rating is available. The trader is concerned that a rise in interest rates will erode the profit margin of the swap position.

The trader can hedge the fixed-rate portion of the swap against a rise in interest rates by selling a specific number of 30-Year Government of Canada Bond Futures (LGB). Receiving a fixed-rate on a swap is similar to buying a bond with the corresponding hedge consisting of selling bond futures contracts. Therefore, the trader's borrowing costs can be indexed to the yield of the 30-year Government of Canada benchmark bond. The trader can lock-in current borrowing levels by selling LGB until an offsetting swap can be arranged.

SETTING:

Price of the LGB	93.74
Price of the cheapest-to-deliver bond Can 5% June 1st, 2037	109.91
Yield-to-maturity of the cheapest-to-deliver bond	4.40%
Conversion factor	1.16
DV01 of the cheapest-to-deliver bond	$176.20
DV01 of the LGB	$151.90
DV01 of the fixed-rate portion of the 30-year swap per $10,000,000 notional amount	$15,730
Swap rate currently quoted in the market	4.91%

DV01 refers to the dollar value of a basis point.

Step 1

Determine the dollar value of a one basis point increase for the 30-year fixed-rate portion of the swap. The trader determines that the DV01 of the fixed-rate portion of the 30-year swap is $15,730.

Step 2

Determine how many LGB contracts (hedge ratio) must be sold to hedge the fixed-rate portion of the swap:

$$\frac{\text{Swap DV01}}{\text{LGB DV01}} = \frac{\$15{,}730}{\$151.90} \approx 104 \text{ contracts}$$

The swap trader effectively locked-in the lower cost of funds by selling an appropriate number of LGBs before offsetting the swap.

TMX Montréal Exchange