CGZ™

Hedging open swap positions

Situation

A swap trader holds a plain vanilla interest rate swap for which he receives a fixed rate of 2.75% semiannually for 2 years and pays a floating 3-month LIBOR rate on a notional amount of $10 million. The trader can realize a profit of 23 basis points on the fixed-rate portion of the swap if the swap position can be immediately offset at the current swap rate of 2.52%. However, no counterparty with a satisfactory credit rating is currently available, and the trader is concerned that a rise in interest rates will erode the profit margin of the swap position.

Strategy

The trader can hedge the fixed-rate portion of the swap against a rise in interest rates by selling a specific number of 2-year Government of Canada bond (CGZ) futures contracts. A fixed-rate receiver on a swap is similar to buying a bond with the corresponding hedge consisting of selling bond futures. Therefore, the trader's borrowing costs can be indexed to the yield of the 2-year Government of Canada benchmark bond. The trader can lock-in current borrowing levels by selling CGZ futures until an offsetting swap can be arranged.

SETTING:

Price of the CGZ futures	105.40
Price of the cheapest-to-deliver bond CAN 3% December 1, 2005	101.14
Yield-to-maturity of the cheapest-to-deliver bond	2.32%
Conversion factor	0.9576
Dollar value of a basis point (DV01) of the cheapest-to-deliver bond	16.83
Dollar value of a basis point (DV01)	17.58
of the CGZ futures	
Dollar value of a basis point (DV01) of the fixed-rate portion of the 2-year swap per $10,000,000 notional amount	1,460
Swap rate currently quoted in the market	2.52%

Step 1

Determine the dollar value of a one-basis point increase for the 2-year fixed-rate portion of the swap. The trader determines that the DV01 of the fixed-rate portion of the 2-year swap is $1,460.

Step 2

Determine the number of CGZ futures (hedge ratio) to sell to hedge the fixed-rate portion of the swap:

$$\frac{\text{Swap DV01}}{\text{CGZ futures DV01}} = \frac{\$1{,}460}{\$17.58} = 83 \text{ contracts}$$

The swap trader effectively locked-in the lower cost of funds by selling an appropriate number of CGZ futures prior to offsetting the swap.

TMX Montréal Exchange