L|G|B™

Yield Curve Spread Canada–U.S.

An investor expects the Canadian economic activity to weaken compared to the U.S. economy. In addition, the investor believes that increasing signs of U.S. job growth and treasury issuance, combined with a weakening U.S. dollar and high current account deficit to gross domestic product ratio, will drive U.S. yields higher in the 30-year yield curve sector. The outlook is expected to result in U.S. 30-year Treasury yields to rise relative to 30-year Government of Canada bond yields.

The investor can act on this view by buying 30-Year Government of Canada Bond Futures (LGB) and selling 30-Year U.S. Treasury Note Futures (U.S. Futures) with the goal to structure a trade that will only respond to changes in the Canada-U.S. 30-year yield spread.

To implement the trade, the investor needs to determine the hedge ratio that will render the two legs of the spread essentially duration neutral. This allows both legs of the futures contract to respond equally to parallel yield shifts, with the spread trade producing results only when one yield changes relative to the other. However, because the U.S. Futures is denominated in U.S. dollars, the hedge ratio must also take the currency exchange rate into account.

SETTING:

DV01 of the LGB (per $100,000 notional amount)	C$151.90*
DV01 of the U.S. Futures (per $100,000 notional amount)	US$124.80
CAN-U.S. dollar exchange rate	1.0005 CAD = 1.00 USD

DV01 refers to the dollar value of a basis point.

* One basis point (bp) decrease in yields will increase the value of one LGB by $151.90.

The hedge ratio, expressed in terms of LGB per U.S. Futures, is determined as follows:

$$\frac{\text{(U.S. Futures DV01) x (CAD per USD ratio)}}{\text{LGB DV01}} = \frac{\$124.80 \times 1.0005}{\$151.90} = 0.822 \text{ contract}$$

To establish a duration neutral spread trade, the investor buys 0.822 LGB for every 1 U.S. Futures sold. To demonstrate that this spread position is essentially duration neutral, one simply multiplies the currency-adjusted U.S. Futures DV01 by 1 and the LGB DV01 by 0.822.

U.S. Futures DV01 (currency adjusted): $124.80 x 1.0005 = C$124.86

LGB DV01: $151.90 x 0.822 = C$124.86

Therefore, a one basis point yield shift results in the same dollar change in both legs of the spread.

The spread trade will generate gains when the Canada-U.S. 30-year yield spread narrows (that is, when Canadian 30-year yields decrease relative to U.S. 30-year yields). For example, U.S. yields can increase while Canadian yields decrease. Or, both yields can decrease with Canadian yields decreasing more, or both yields can increase with U.S. yields increasing more. All these scenarios will positively impact the spread described above. However, this spread will produce losses any time the spread widens.