

Trading on the yield curve

An investor expects the Government of Canada yield curve to steepen. Supporting the outlook is the anticipation of a rise in the overnight target rate by the Bank of Canada due to a better than expected Canadian economy growth. The investor found that the Canadian economy is stronger than anticipated a couple months ago and that global business and consumer confidence is rising.

Strategy

If an investor predicts a non-parallel shift in the yield curve of Government of Canada bonds, they can profit from this using Government of Canada bond futures. There are two possibilities: the spread narrows or the spread widens. If the investor expects the spread to narrow, they will buy the longer term futures and sell the shorter term futures. This can be explained by looking at a simple example: considering that long-term yields are higher than the short-term yields, if the yield spread narrows, three outcomes are possible. First, the longer term yield decreases and the short-term yield remains unchanged (this implies that only long-term bond prices increase), secondly, the long-term yields decrease while the shorter term yields increase (this implied long-term bond prices increase and shorter term bond prices decrease), and lastly, the long-term yields remain unchanged and the shorter term yields increase (this implies that only shorter term bond prices decrease). The same reasoning can be used to explain why investors should purchase shorter term bond futures and sell longer term bond futures if they expect a widening of the spreads.

In the following strategy, we will see how an investor can profit from his views on the 2-year yield and 10-year yield spreads.

SETTING:

Price of the CGZ contract	108.52
CTD bond	Can 0.75% May 1, 2014
DV01 of the CGZ contract	3.846
Price of the CGB contract	139.65
CTD bond	Can 3.25% June 1, 2021
DV01 of the CGB contract	10.965
Current 2-yr/10-yr GoC yield spread ("Tens under Twos")	60 basis points

The investor buys the spread by buying CGZ contract and selling CGB contract with gains or losses on the spread dependent on the result of changes in the yield curve as opposed to changes in the direction of interest rates. To neutralize the directional changes of interest rates, a yield curve ratio (hedge ratio) is determined using the DV01 for each contract. As a result, the investor is assured that each leg will respond equally, in dollar terms, to a given yield change.

The hedge ratio, expressed in terms of CGZ contract per CGB contract, is determined as follows:

$$\frac{\text{CGB contract DV01}}{\text{CGZ contract DV01}} = \frac{\$10.965}{\$3.846} \approx 2.85 \text{ contracts}$$

Therefore, to establish a duration neutral spread trade, the investor buys 2.85 CGZ contracts for every 1 contract of CGB sold. This yield curve strategy results in a gain only if the yield curve steepens (i.e. the two-year/ten-year spread widens). However, the strategy will generate a loss if the yield curve flattens (i.e. the two-year/ten-year spread narrows).