

Credit spread: 2-year Government of Canada bond futures / BAX 2-year strip

Situation

Given the increase in corporate bankruptcies and deteriorating corporate balance sheets, a trader expects spreads between high quality corporate bonds and Government of Canada bonds to continue to widen in the foreseeable future. Furthermore, the trader believes that the current spread between short-term corporate paper and equivalent maturity Government of Canada bonds (GoCs) does not reflect this outlook and the flight-to-quality into GoCs is expected to occur.

Strategy

With the expectations of a “credit crunch” looming, the trader can capitalize on this outlook by buying 2-year Government of Canada bond (CGZ) futures and selling a strip of consecutive 3-month Canadian bankers’ acceptance (BAX) futures contracts. Bankers’ acceptances are short-term money market instruments with the payment of principal and interest guaranteed by one of Canada’s major banks. It is possible to trade BAX strips v. longer maturity securities such as GoCs, with the spread referred to as the “2-year GoC/BAX credit spread” or “2YBA spread.” A strip may be purchased (or sold) by buying (or selling) a series of BAX futures maturing in successively deferred months, in combination with a current position in the cash or futures market.

One might buy the spread (buy CGZ/sell BAX strips) in anticipation of a widening yield spread between GoCs and BAXs. This spread may be considered a credit risk or a “flight-to-quality” play if one expects credit considerations to heat up. Or, one may sell the spread (sell CGZ/buy BAX strips) in anticipation of a narrowing yield spread between GoCs and BAXs if one expects credit considerations to become less significant.

Bankers’ acceptances represent private credit risks versus the reduced public credit risk implied in GoC bond yields. Because credit risk is an important issue, the trade is executed as a “spread” and should not be considered an “arbitrage” strategy. In order to assess the value of this spread, it is necessary to compare apples with apples. In other words, one must ensure that the yield on the BAX strip compares to the bond equivalent yield (BEY) associated with the GoC bond.

In order to compare the BAX strip to the yield on a 2-year GoC bond, we find the BEY of the BAX strip as follows: (1) find the forward value (FV) of the strip; and (2) use that information to derive a BEY for the strip (BEY BAX strip).

SETTING:

Yield of the cheapest-to-deliver bond CAN 3% June 1, 2006	2.339%
Bond equivalent yield (BEY) of the 2-year BAX strip	2.473%
BEY spread of the 2-year BAX strip / 2-year GoC bond	13.4 basis points
Remaining time to maturity of the cheapest-to-deliver bond CAN 3% June 1, 2006 (799 days)	2.19 years
Conversion factor of the cheapest-to-deliver bond	0.9508
Price of the CGZ September futures	106.02
Dollar value of a basis point (DV01) of the BAX futures per \$1,000,000 notional amount	25
Dollar value of a basis point (DV01) of the CGZ futures per \$50,000,000 notional amount (500 CGZ futures)	11,255

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Step 1

Compute the forward value of the BAX strip =

$$\begin{aligned} & [1 + 0.021561(84/365)] [1 + 0.0193(91/365)] [1 + 0.0192(91/365)] \\ & [1 + 0.0205(91/365)] [1 + 0.0226(91/365)] [1 + 0.0255(98/365)] [1 + 0.0286(91/365)] \\ & [1 + 0.0320(84/365)] [1 + 0.0344(78/365)] = 1.055309 \end{aligned}$$

The forward value of the BAX strip implies a BAX implied strip rate that is calculated as follows:

$$\text{BAX implied strip rate} = (365/799) \times [\text{Forward value of the BAX strip} - 1] \div (365/799) \times [1.055309 - 1] = 2.527\%$$

Step 2

Compute the BEY of the BAX strip

$$[1.055309^{1/2.19 \times 2} - 1] \times 2 = 2.473\%$$

>> Therefore, the BEY spread between the 2-year BAX strip and the 2-year Government of Canada 3% June 1, 2006 bond is 13.4 basis points; or

$$\text{2YBA spread} = \text{BEY BAX strip} - \text{BEY 2-year GoC bond}$$

$$0.134\% = 2.473\% - 2.339\%$$

The trader expects the BEY spread to widen based on credit risk concerns and the anticipated flight-to-quality into Government of Canada bonds.

Step 3

We apply the following hedge ratio to determine the appropriate number of BAX futures that must be bought or sold for a notional amount of \$50,000,000.

$$\text{Hedge ratio} = \frac{\text{CGZ futures DV01}}{\text{BAX Futures DV01}} = \frac{\$11,255}{\$25} = 450 \text{ BAX futures to sell}$$

- >> Therefore, the credit-spread strategy involves selling a total of 450 BAX futures for every 500 CGZ futures bought. The transaction is based on a notional amount of \$50,000,000 or 500 CGZ futures.
- >> The total number of BAX futures necessary to hedge the CGZ futures is subsequently broken down into the required number of contracts for each leg of the strip.

Contract	Days in period	Rate %	BAX contracts to sell
STUB period 03/22/04 to 06/14/04	84	2.1561	47
BAX June 2004	91	1.93	52
BAX Sept 2004	91	1.92	52
BAX Dec 2004	91	2.05	52
BAX March 2005	91	2.26	52
BAX June 2005	98	2.55	54
BAX Sept 2005	91	2.86	52
BAX Dec 2005	84	3.20	47
BAX March 2006	78	3.44	42
2-year BAX strip	799 days	2.527%	450
		Implied strip rate	Total number of BAX futures to sell per \$50,000,000 notional amount (500 CGZ contracts)
		2.473%	
		Bond equivalent yield	