

C | G | Z

Two-Year
Government of Canada Bond Futures Contract



**Montréal
Exchange**

www.m-x.ca

Since the introduction of its ten-year Government of Canada bond futures (CGB), the Montréal Exchange has successfully established itself as the Canadian financial derivatives exchange. Concerted efforts with the federal government and key financial institutions have led to a liquid ten-year contract. The commitment of the participants of the Exchange to a market maker system, and steps taken by the Government of Canada (GoC) to increase the liquidity of the underlying deliverable bond issues, assure continued success for the CGB contract.

CGZ

The need for a two-year Government of Canada bond futures contract (CGZ) has been confirmed through requests and comments made by the market. The rationale behind the two-year contract is:

- Trading has been growing at an annual rate of 13.2% since 2000, from an average daily value of C\$5.09 billion in 2000 to C\$7.38 billion in 2003.
- The two-year segment of the Canadian yield curve accounts for:
 - 42% of the total GoC bond trading with an average daily value in 2003 of C\$7.38 billion;
 - the highest concentration of new and outstanding issues; and
 - the highest volatility in yield changes (25% annualized).

Contract Design Issues

Physical delivery

Physical delivery is the preferred method of most international listed bond futures for settlement. This is because delivery imposes a better discipline on participants than cash settlement.

As there are a sufficient number and outstanding dollar amount of deliverable GoC bonds in the cash market to support a bond futures including both two- and five-year issues in the basket of deliverables, the physical delivery has been selected in addition to the following reasons:

- **Rollover:** The roll from the front contract to the next listed month will be more orderly if the contract is via physical delivery. A physical-delivery contract will better facilitate "fair value" rollover, as users would find it easier to price the next contract month.
- **Trading opportunities:** Deliverable bond contracts create a number of trading opportunities due to short-term fluctuations in the cash/futures basis. The ability to profit from such fluctuations creates numerous arbitrage strategies.
- **Greater impact on bond market volume:** Hedging, portfolio rebalancing, and cash and carry strategies can create greater activity in the cash market.

- **Harmonization - CGB and international bond futures:** Harmonizing the delivery settlement with existing bond futures would create interproduct spread opportunities to take advantages of yield curve shifts. Such opportunities would also benefit arbitrageurs who use spreading techniques against contracts such as the U.S. T-Notes and German Schatz.

6% notional coupon

- **Harmonization - CGB and international bond futures:** As is the practice of harmonization at a 6% coupon across the product line at CBOT, Eurex and SFE.
- **Implications on cheapest-to-deliver bond:** A 6% coupon relative to actual two-year GoC bond yields of 2.40% favours shorter duration bonds (i.e. two-year benchmark issues in most cases).

Delivery terms

- **Eligible GoC bond issues in the basket of deliverables:**
 - Inclusion of both two- and five-year issues to provide a sufficiently large deliverable basket in terms of outstanding dollar amount.
 - Harmonize with the practice of the CBOT two-year T-Note and EUREX two-year Schatz contracts.
- **Remaining time to maturity (time window):** A longer remaining time to maturity of 1^{1/2} to 2^{1/2} years (window of one year) is selected to permit eligible bonds to stay longer in the basket of deliverables in order to provide the maximum number of bonds and outstanding dollar amount (basket liquidity).

The Montréal Exchange bond futures offer a wide variety of applications

- Hedging
- Asset allocation
- Duration modification
- Building synthetic securities
- Intermarket spread trading
- Intracurve spread trading
- Credit arbitrage

The launch of the CGZ will be supported with continuous and competitive market making with size and spread commitments designed to ensure an attractive market. Market making firms are **RBC Dominion Securities Inc.** and **TD Securities Inc.**

For more details on uses and strategies, visit our website at www.m-x.ca.



Trading Unit	C\$100,000 nominal value Government of Canada bond with 6% notional coupon.
Contract Months	March, June, September and December.
Price Quotation	Par is on the basis of 100 points where one point equals to C\$1,000.
Last Trading Day	Trading ceases at 1:00 p.m. (EST) on the 7th business day preceding the last business day of the delivery month.
Contract Type	Physical delivery of eligible Government of Canada bonds.
Delivery Notices	Delivery notices shall be submitted before 5:30 p.m. or before such time set by the clearing corporation on any business day, between the 2nd business day preceding the first business day of the delivery month, and the 2nd business day preceding the last business day of the delivery month inclusively.
Delivery Day	Delivery shall be made on the 2nd business day following the submission of the delivery notice by the approved participant holding a seller's position or on any other day as determined by the clearing corporation. Delivery shall be completed no later than the last business day of the delivery month.
Minimum Price Fluctuation	0.01 = C\$10 per contract.
Reporting Level	250 contracts.
Position Limits	Information on Position Limits are subject to periodic changes and can be obtained from the Exchange.
Minimum Margin Requirements	Information on Minimum Margin Requirements are subject to periodic changes and can be obtained from the Exchange.
Delivery Standards	Government of Canada bonds which: <ul style="list-style-type: none"> i. Have a remaining time to maturity of between 1¹/₂ year and 2¹/₂ years as of the first day of the delivery month, calculated by rounding down to the nearest whole month period. ii. Have an outstanding amount of at least C\$3.5 billion nominal value. iii. Are originally issued at 2-year or 5-year Government of Canada bond auctions. iv. Are issued and delivered on or before the 15th day preceding the first delivery notice day month of the contract.
Daily Price Limit	Three points (C\$3,000) per contract above or below the previous day's settlement price.
Trading Hours	- Early session: 6:00 a.m. to 8:05 a.m. (EST) - Regular session: 8:20 a.m. to 3:00 p.m. (EST) - Curb trading session: The curb trading session begins once settlement prices have been determined and ends at 4:00 p.m. (EST).
Clearing Corporation	Canadian Derivatives Clearing Corporation (CDCC).
Ticker Symbol	CGZ.

> Reducing the duration of a bond portfolio

SITUATION

A portfolio manager forecasting a rise in interest rates intends to decrease the duration of his bond portfolio. Furthermore, the manager expects the yield curve to flatten with short-term yields rising faster than the rest of the curve.

STRATEGY

Using the 2-year Government of Canada bond (CGZ) futures contract, the portfolio manager can quickly decrease the duration of the bond portfolio.

SETTING:

Value of bond portfolio	\$50,000,000
Total modified duration of the portfolio	3.775
Yield of the portfolio	3.327%
Targeted modified duration of the portfolio	2.5
Price of the CGZ futures	105.82
Cheapest-to-deliver bond	CAN 3% June 1, 2006
Conversion factor	0.9508
Dollar value of a basis point (DV01) of the cheapest-to-deliver bond (per \$100,000 notional amount)	21.69
Dollar value of a basis point (DV01) of the CGZ futures (per \$100,000 notional amount)	22.81

Step 1

The portfolio manager must determine the dollar value of a basis point.

For the current portfolio: $\$50,000,000 \times 3.775 \times 0.0001 = \$18,875$

For the targeted portfolio: $\$50,000,000 \times 2.5 \times 0.0001 = \$12,500$

Difference between the targeted and the actual BPV of the portfolio: $\$12,500 - \$18,875 = -\$6,375$

Step 2

He applies the following hedge ratio to determine the appropriate number of CGZ futures that must be sold to obtain the desired duration.

$$\frac{\text{Targeted portfolio DV01} - \text{Current portfolio DV01}}{\text{CGZ futures DV01}} = \text{Number of CGZ futures}$$

$$\frac{-\$6,375}{\$22.81} = -280 \text{ futures}$$

$$\gg \text{Number of CGZ futures to sell} = 280$$

Adjusting the total modified duration of a portfolio to investor's specifications is quite simple with the help of futures. By selling (or buying) futures, it is possible to decrease (or increase) the total modified duration of the portfolio.



> Lengthening the duration of a T-bill portfolio

SITUATION

A money market manager expects short-term yields to decline and the yield curve to shift downwards, with yields falling the most in the 1- to 3-year sector compared to the rest of the curve. The portfolio consists of 6-month T-bills, but the manager would rather be invested in Government of Canada bonds with longer maturities in order to profit from this outlook.

STRATEGY

To effectively lengthen the duration of the portfolio, without disrupting its T-bill composition, the manager can buy 2-year Government of Canada bond (CGZ) futures contracts.

SETTING:

Value of T-bill portfolio	\$100,000,000
Total modified duration of the portfolio	0.4944
Yield of the portfolio	2.25%
Targeted modified duration of the portfolio	2
Price of the CGZ futures	105.82
Cheapest-to-deliver bond	CAN 3% June 1, 2006
Conversion factor	0.9508
Dollar value of a basis point (DV01) of the cheapest-to-deliver bond (per \$100,000 notional amount)	21.69
Dollar value of a basis point (DV01) of the CGZ futures (per \$100,000 notional amount)	22.81

Step 1

The money market manager must determine the dollar value of a basis point.

For the current portfolio: $\$100,000,000 \times 0.4944 \times 0.0001 = \$4,944$

For the targeted portfolio: $\$100,000,000 \times 2 \times 0.0001 = \$20,000$

Difference between the targeted and the actual BPV of the portfolio: $\$20,000 - \$4,944 = \$15,056$

Step 2

He applies the following hedge ratio to determine the appropriate number of CGZ futures that must be bought to obtain the desired duration.

$$\frac{\text{Targeted portfolio DV01} - \text{Current portfolio DV01}}{\text{CGZ futures DV01}} = \text{Number of CGZ futures}$$

$$\frac{\$15,056}{\$22.81} = 660 \text{ futures}$$

>> Number of CGZ futures to buy = 660

Adjusting the total modified duration of a portfolio to investor's specifications is quite simple with the help of futures. By buying (or selling) futures, it is possible to increase (or decrease) the total modified duration of the portfolio.



> Yield curve spread Canada–U.S.

SITUATION

An investor expects Canadian economic activity to weaken relative to that of 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 GDP ratio, will drive U.S. yields higher with the 2-year yield curve sector the most affected. The outlook is expected to result in U.S. 2-year Treasury yields to rise relative to 2-year Government of Canada bond yields.

STRATEGY

The investor can act on this view by buying 2-year Government of Canada bond (CGZ) futures contracts and selling 2-year U.S. Treasury Note (TU) futures contracts with the goal to structure a trade that will respond only to changes in the Canada–U.S. 2-year yield spread.

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

SETTING:

CGZ futures DV01	C\$17.70*
TU futures DV01	US\$45.58
CAN-U.S. dollar exchange rate	C\$1.3300 per U.S. dollar

* One basis point (bp) decrease in yields will increase the value of one CGZ futures by \$17.70.

The hedge ratio, expressed in terms of CGZ futures per TU futures, is determined as follows:

$$\frac{(\text{TU futures DV01}) \times (\text{CAD per U.S. dollar})}{\text{CGZ futures DV01}} = \frac{\$45.58 \times 1.3300}{\$17.70} = 3.425 \text{ futures}$$

To establish a duration neutral spread trade, the investor buys 3.425 CGZ futures for every 1 TU futures sold. To demonstrate that this spread position is essentially duration neutral, one simply multiplies the currency-adjusted TU futures DV01 by 1 and the CGZ futures DV01 by 3.425.

TU futures DV01 (currency adjusted): $\$45.58 \times 1.3300 = \60.62

CGZ futures DV01: $\$17.70 \times 3.425 = \60.62

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. 2-year yield spread narrows (i.e. when Canadian 2-year yields fall relative to U.S. 2-year yields). For example, U.S. yields can rise while Canadian yields fall. Or, both yields can fall with Canadian yields falling more, or both yields can rise with U.S. yields rising more. All these scenarios will positively impact the spread described above. However, this spread will generate losses any time the spread widens.



> Yield curve spread 2-year/10-year Government of Canada

SITUATION

An investor expects the Government of Canada (GoC) yield curve to continue to steepen in the foreseeable future. Supporting the outlook is the anticipation of additional rate cuts by the Bank of Canada due to a sluggish Canadian economy, as the output gap remains larger than expected as well as the adverse effects of the Canadian dollar's sharp appreciation on the export sector. The investor expects the front end of the yield curve to continue to be pressured to the downside as the yield spread between the benchmark 2-year and 10-year GoC bonds continues to widen.

STRATEGY

With the expectations of further steepening in the yield curve, the investor can capitalize on this outlook by buying the yield curve using 2-year and 10-year Government of Canada bond futures contracts (CGZ and CGB, respectively). A yield curve spread strategy that uses bond futures implies that one buy or sell the yield curve in terms of what one does with the shorter-maturity bond futures. Thus, if one anticipates a steeper yield curve (i.e. a widening yield spread), then one would buy the curve by buying CGZ futures and selling CGB futures. Conversely, if one expects the yield curve to flatten (i.e. a narrowing yield spread), one would sell the curve by selling CGZ futures and buying CGB futures.

SETTING:

Price of the CGZ futures	105.82
Cheapest-to-deliver bond	CAN 3% June 1, 2006
Dollar value of a basis point (DV01) of the CGZ futures	22.81
Price of the CGB futures	111.29
Cheapest-to-deliver bond	CAN 5.25% June 1, 2013
Dollar value of a basis point (DV01) of the CGB futures	83.33
Current 2-yr/10-yr GoC yield spread ("Tens under Twos")	191 basis points

The investor buys the spread by buying CGZ futures and selling CGB futures 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 dollar value of a basis point (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 futures per CGB futures, is determined as follows:

$$\frac{10\text{-year CGB DV01}}{2\text{-year CGZ DV01}} = \frac{\$83.33}{\$22.81} = 3.653 \text{ contracts}$$

Therefore, to establish a duration neutral spread trade, the investor buys 3.653 CGZ futures for every 1 contract of CGB futures sold. This yield curve strategy results in a gain only if the yield curve steepens (i.e. the 2-year/10-year spread widens). However, the strategy will generate a loss if the yield curve flattens (i.e. the 2-year/10-year spread narrows).



> 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% semi-annually 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) of the CGZ futures	17.58
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.



> Cash and carry trade

SITUATION

A bond trader notes that the price relationship between the cheapest-to-deliver 3% December 2005 Government of Canada (GoC) bond and the 2-year GoC bond (CGZ) futures contract is out-of-line.

The trader's observation is supported by:

1. An actual repo rate (2.24%) that is lower than the repo rate (2.39%) implied by the price of the CGZ futures. A condition that provides a trader an arbitrage profit by initiating a cash-and-carry trade, whereby the trader sells bond futures and finances the purchase of the cash bond at a rate below the rate implied by the futures price. The bond is then held until it is delivered to fulfill the obligation of the sale of the futures contract; and
2. A net basis (basis after carry) reflecting that the actual price of the CGZ futures is overpriced ("rich") relative to its theoretical fair value.

June 2004 CGZ Futures	Last delivery day	CGZ futures price	Valuation date
	06/30/04	105.45	03/11/04

Coupon	Maturity	Bond price	Conversion factor	Implied Repo %	Actual Repo %	Net Basis
3%	December 2005	101.14	0.95757	2.39%	2.24%	-0.044

The trader realizes that the temporary mispricing offers an arbitrage opportunity. Consequently, he initiates a cash-and-carry trade consisting of the purchase of the cheapest-to-deliver bond in the cash market and the sale of CGZ futures, to lock-in a profit.

STRATEGY

The trader initiates a cash-and-carry trade that involves the following steps:

1. Pay for the purchase of the cheapest-to-deliver bond (bond price + accrued interest).
2. Finance the bond purchase at the current short-term financing rate (actual repo rate).
3. Receive any intervening coupon plus reinvestment income during the life of the futures contract.
4. Receive the futures invoice price + intervening coupon accrued interest from delivering the bond (i.e. collect the anticipated receipt from delivering bond to the buyer).
5. Repay the cash amount borrowed to purchase the cheapest-to-deliver bond plus interest.
6. Calculate arbitrage profit.

SETTING:

Price of the cheapest-to-deliver bond CAN 3% December 1, 2005	101.14
Accrued interest (105 days = December 1 to March 15 settlement date)	0.863
Financing rate (actual repo rate)	2.24%
Conversion factor	0.95757
Price of the CGZ futures	105.45
Days from settlement to futures delivery (March 15 to June 30)	107
Days from next coupon to futures delivery (June 1 to June 30)	29

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CASH-AND-CARRY TRANSACTION	AMOUNT (per \$100,000 notional amount)	REMARKS
Purchase the CTD bond	$\$101,140 + \$863 = \$102,003$	Price of bond + Accrued interest
Financing costs until CGZ futures delivery	$\$102,003 \times 0.0224 \times 107/365 = \670	Amount borrowed to buy bond x Short-term financing rate x Number of days/365
Income during the life of the CGZ futures (credit and reinvestment of the coupon: June 1 to June 30)	$\$1,500 + (\$1,500 \times 0.0224 \times 29/365) = \$1,503$	Coupon income + (Coupon income x Short-term financing rate x Number of days/365)
Total costs of the bond position	$\$102,003 + \$670 - \$1,503 = \$101,170$	Investment + Financing - Income
Delivery price of the deliverable bond at CGZ futures delivery	$(\$105,450 \times 0.95757) + \$238^* = \$101,214$ * $\$100,000 \times 3\% \text{ coupon} \times 29/365$	Futures invoice price x Conversion factor + Accrued interest received by the seller from the bond buyer
Arbitrage profit (per CGZ futures)	$\$101,214 - \$101,170 = \$44$	Delivery price of the deliverable bond - Total costs of the bond position

>> Using CGZ futures, the cash-and-carry strategy results in a profit of \$44 per contract.

Strategy CGZ



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

$$\begin{aligned} &\text{Compute the forward value of the BAX strip} = \\ &[1 + 0.021561(84/365)] [1 + 0.0193(91/365)] [1 + 0.0192(91/365)] \\ &[1 + 0.0205(91/365)] [1 + 0.0226(91/365)] [1 + 0.0255(98/365)] [1 + 0.0286(91/365)] \\ &[1 + 0.0320(84/365)] [1 + 0.0344(78/365)] = 1.055309 \end{aligned}$$

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

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

Step 2

$$\begin{aligned} &\text{Compute the BEY of the BAX strip} \\ &[1.055309^{1/2.19 \times 2} - 1] \times 2 = 2.473\% \end{aligned}$$

>> 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

$$\begin{aligned} \text{2YBA spread} &= \text{BEY BAX strip} - \text{BEY 2-year GoC bond} \\ 0.134\% &= 2.473\% - 2.339\% \end{aligned}$$

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.

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

>> 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 2.473%	Total number of BAX futures to sell per \$50,000,000 notional amount (500 CGZ contracts)
		Bond equivalent yield	





Montréal Exchange

Head Office

Sales and Marketing
Tour de la Bourse
P.O. Box 61
800, Victoria Square
Montréal, Quebec H4Z 1A9

Toll free within Canada and the U.S.A.:
1-866-871-7878

Toll free from the U.K. and France:
00.800.36.15.35.35

Fax: (514) 871-3559

commercial@m-x.ca

www.m-x.ca

Toronto Office

65 Queen Street West
Suite 700
Toronto, Ontario M5H 2M5

Telephone: (416) 367-2467

Fax: (416) 367-2473

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