LGB™

Cash-and-Carry Trade

A bond trader notes that the price relationship between the cheapest-to-deliver Can 5% June 2037 (GoC) bond and the 30-Year Government of Canada Bond Futures (LGB) is out-of-line.

The trader's observation is supported by:

1. An actual repo rate (4.95%) that is lower than the repo rate (5.15%) implied by the price of the LGB. A condition that provides the 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;
2. A net basis (basis after carry) reflecting that the actual price of the LGB is overpriced relative to its theoretical fair value.

June 2008 LGB	**Last Delivery Day 06/30/08**	**LGB Price 93.74**	**Valuation date 01/15/08**			
Coupon	Maturity	Bond Price	Conversion Factor	Implied Repo	Actual Repo	Net Basis
5%	June 37	109.31	1.1691	5.15%	4.95%	-0.087

The trader realizes that the temporary mispricing offers an arbitrage opportunity. Thus, 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 LGB, to lock-in a profit.

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

1. Purchase the cheapest-to-deliver (CTD) 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 (that is, collect the expected receipt from delivering bond to the buyer).
5. Repay the cash amount borrowed to purchase the CTD bond + interest.
6. Calculate arbitrage profit.

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SETTING:

Price of the cheapest-to-deliver bond CAN 5% June 1st, 2037	109.31
Accrued interest: 48/183 x 2.5 (48 days = December 1 to January 18 settlement date)	0.655
Financing rate (actual repo rate)	4.95%
Conversion factor	1.1691
Price of the LGB	93.74
Days from settlement to futures delivery (January 18 to June 30)	164
Days from next coupon to futures delivery (June 1 to June 30)	29

CASH-AND-CARRY TRANSACTION	AMOUNT (per $100,000.00 notional amount)	REMARKS
Purchase the CTD bond	$109,310 + $655 = $109,965	Price of bond + Accrued interest
Financing costs until LGB delivery	$109,965 x 0.0495 x 164/365 = $2,446	Amount borrowed to buy bond x Short-term financing rate x Number of days/365
Income during the life of the LGB (credit and reinvestment of the coupon: June 1 to June 30)	$2,500 + ($2,500 x 0.0495 x 29/365) = $2,510	Coupon income + (Coupon income x Short-term financing rate x Number of days/365)
Total costs of the bond position	$109,965 + $2,446 - $2,510 = **$109,901**	Investment + Financing - Income
Delivery price of the deliverable bond at LGB delivery	($93,740 x 1.1691) + $397* = **$109,988** * $100,000 x 5% coupon x 29/365	Futures invoice price x Conversion factor + Accrued interest received by the seller from the bond buyer
Arbitrage profit (per LGB)	$109,988 - $109,901 = **$87**	Delivery price of the deliverable bond - Total costs of the bond position

By using the LGB, the cash-and-carry strategy results in a profit of $87 per contract.

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