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CGB Ten-Year Government of Canada Bond Futures

MONTRÉAL EXCHANGE

Compare and Contrast: Shorting CGB Versus 10-Year Benchmark

Summary

Shorting CGB futures instead of 10-year bonds to duration hedge is less expensive for the Portfolio Manager, less work intensive and expensive for the institution, and subject to less financing risk. The additional risk introduced by utilizing CGB futures instead of bonds is usually negligible, especially for frequent issuers.

Straight Cost Comparison

We observed the listed bid/ask spread for the 10-year government of Canada (GoC) benchmark bond and the CGB contract at 3pm and modeled a hypothetical trade to hedge duration exposure via the traditional 10-year benchmark bond as well as a DV01 equivalent sale of CGB contracts.

Results

Using the prices and G/C financing rates captured on November 26th, 2018 we calculate an advantage, assuming unchanged yield curves, of $22,092 or 0.27 basis points for the Portfolio Manager to utilize CGB rather than the traditional 10-year government bond. In the event a squeeze is experienced in the repo market of just an average 10 basis points during the life of the financing, that advantage for CGB grows to $30,866 or 0.37 basis points.

Model parameters

INPUT PARAMETER	10-Year Bond	CGBH19
Trade	Sell $100 million notional	Sell 782 contracts
Bid/Ask Spread	$0.03	$0.01
Trade Horizon	1 month	
Commission	No (in bid/ask spread)	Yes (used standard rate at major bank)
Repo/Reverse transactions required	Yes (assumed no bid/ask spread for repo market)	No
Margin required	No	Yes (used MX minimum required)
Financing haircut	0%	N/A
Horizon model	Horizon rolldown, unchanged yield curve	
Number of settlement transactions	Minimum of 5, more for rolled repos	2
Total hedge cost (no repo squeeze)	$83,798	$61,706
CGB Advantage	**$22,092 (0.27 bps)**	

Cash Bond Hedge

CASH FLOWS

Initial proceeds:	$97,960,301
Interim coupon:	-$1,000,000
Financing:	$153,554
Closing cost:	-$97,197,653
Total:	**-$83,798**

Futures Hedge

CASH FLOWS

Futures position:	-$56,113
Commission:	-$3,003
Margin opportunity cost:	-$2,590
Total:	**-$61,706**

Additional Costs of Repo

The cost comparison above assumes only financial costs in the Portfolio Manager's specific portfolio and does not attempt to quantify the additional labour costs associated with executing and settling the financing transactions; costs that don't exist when utilizing the self-financing CGB contract. However, those activities have substantial costs for the institution, even if they are not passed along one for one to the PM.

For example, financing the bond sale can be quite labour intensive as the buy/sellback transaction requires an upfront collateral and cash exchange on November 28th, a closing date collateral and cash exchange on December 28th, as well as the return of the coupon received by the buyer to the seller on December 1, 2018. Rolling repo rather than executing a term repo transaction would generate even more settlement transactions and additional work for a firm's middle office personnel. While these transactions are routine for most large institutions, they do carry a cost.

Assessing Basis Risk

There is some basis risk for firms attempting to hedge a 10-year exposure with a CGB contract but, historically, not that much. Over the past year, for example, the largest 30-day steepening move in the 9-10 year slope has been 1.7 basis points while the largest 30-day flattening move in the same measure has been 2 basis points. The median and mean move over 30 days has been essentially zero basis points so, on average, a manager hedging a 10-year exposure would have lost zero (on repeated transactions) but gained the 0.3-0.4 basis points each time on reduced hedging costs over a year.

Assessing Implied Repo Risk

Some managers may worry about an increase in the implied repo for the contract (a richening of the contract relative to cash) which can result in imperfect hedging since the contract is closed prior to the delivery date. That risk appears quite minor and not large enough over a time horizon of a single month to negate the advantage of using futures instead of cash bonds. For example, in the case examined, a move from an implied repo of 1.886% (50% chance of a Bank of Canada rate hike during the contract life) to a certain rate hike (implied repo of 2%), the futures hedge still outperforms the cash bond hedge by $2,737 on the overall hedge…more if there is a repo squeeze. Of course, a reduction in the implied repo rate to the horizon date benefits the user of CGB contracts relative to the cash bond hedge, as actually happened over the dates examined. A decrease in the implied repo to 1.75% would lead to an outperformance of $45,335 for the futures hedge, over the cash bond hedge.

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