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The Futures Invoice Spread: Taking a View on a Swap Spread and Hedging an Interest Rate Swap Using Government of Canada Bond Futures

INTRODUCTION

The notional dollar amount traded on the over-the-counter (OTC) derivatives market is growing at a remarkable rate. According to the Bank for International Settlements, total amounts outstanding of OTC derivatives have reached more than US$700 trillion at the end of Q2 2011. And the interest rate swap segment represents almost 65% of the total notional amount outstanding of OTC derivatives.

The interest rate swaps curve reflects the global benchmark rates for pricing and valuing a wide range of financial instruments. In the fixed income market, the yield spread between interest rate swaps and government bonds is a widely accepted measure of relative value. In this article, we will discuss how to get this swap spread exposure through a futures invoice spread strategy from a Canadian perspective.

Swap spread determinants

Several factors may affect a swap spread. Such factors include the yield level, the carry/funding cost, systemic risk factors, issuance and mortgage convexity hedging, and the supply and demand effect. All of these can exert pressure on government bond yields or swap market rates. Due to economic conditions, this spread has been particularly unstable in the years following the financial crisis of 2008. In some instances, the swap spread turned negative (with swap yields lower than government bond yields) as it was the case from late 2008 to early 2009 (see Figure 1). This can be explained by supply and demand factors, as well as the perception of heightened sovereign credit risk concerns.

FIGURE 1 : Historical Canada 10-Year Swap Spread
APRIL 2007 TO APRIL 2012

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Futures invoice spread

Government bond asset swap spread exposure can be achieved cost efficiently using interest rate futures instead of cash bonds. To initiate a long/short position in the bond futures market, only an initial margin is required. Bond futures, such as the 10-Year Government of Canada Bond Futures contract (CGB), also have a narrower bid/ask spread than that of the underlying cash bond market.

Furthermore, bond futures contracts are a great alternative to investors who cannot short bonds or foreign investors that don't have easy access to the Canadian government bond market. Futures contracts also eliminate the need to do any financing transactions in the repo/reverse repo market. The futures invoice spread strategy is based on the forward-starting interest rate swap that begins on the last delivery date of the futures contract and ends at the maturity date of the underlying cash bond (the cheapest-to-deliver bond or CTD). The spread represents the difference between the fixed rate of the swap for the same maturity and the yield of the bond futures CTD. Futures invoice spreads can be traded on-exchange through an Exchange for Risk (EFR) facility.

Invoice spread transactions allow investors to express an opinion on the perceived credit risk of two financial debt instruments (for example, a sovereign government bond and an interest rate swap). A widening invoice spread reflects a perceived increase of credit risk. A narrowing invoice spread reflects a perceived diminishing of credit risk.

INVOICE SPREAD ANALYSIS – TWO STRATEGY EXAMPLES

Hedging a forward interest rate swap with Government of Canada (GoC) bond futures

Bloomberg has launched a futures invoice spread analysis (IVSP) function. The IVSP function calculates the forward bond futures yield against a corresponding forward-starting interest rate swap so that investors can evaluate potential invoice spread transactions. The IVSP analytics function can also be used to determine the number of CGB futures contracts required to hedge a notional amount of $10 million of forward interest rate swaps. In this analysis, we used the CGB June 2012 contract and the cheapest-to-deliver reference bond is the GoC 3½% June 2020 bond.

FIGURE 2 : IVSP Analytics Function on Bloomberg for the Futures Invoice Spread

Considering actual market implied yields, an investor must take a position in 82 CGB bond futures contracts to hedge a notional amount of C$10 million of corresponding forward-starting swap. Specifically, it takes 82 CGB bond futures for the position to be duration neutral—where the DV01 of the fixed leg of the swap (C$7,549 per C$10 million of notional) is equal to the DV01 of the CGB futures (C$7,587 per C$10 million of notional). Note that the slight difference in the DV01 of the position is due to the rounding of the 82 CGB futures. With this position, the overall interest rate level change is hedged and the remaining exposure is the spread (swap spread of 0.382% or 38.2 basis points) between the futures yield (1.902%) and the swap fixed rate (2.284%).

This analysis can be done on different segments on the yield curve using the 2-Year CGZ and the 5-Year CGF Government of Canada Bond Futures contracts coupled with the corresponding matched-maturity forward-starting swap. As per results obtained, an investor may choose to be long or short the relevant futures and take the opposite position on the matched-maturity swap. At expiration of the futures contracts, the investor can choose to roll the contracts, close-out the position or take physical delivery of the cash bond.

Taking a view on the swap spread using the futures invoice spread

An investor can also be long or short the relevant bond futures and take the same position on the matched-maturity swap through the EFR facility.

An EFR is a basis trade. Investors execute an EFR on the view that the price difference between the cash leg (an OTC derivative in the case of an EFR) and the futures leg of the transaction will either widen (long the basis) or narrow (short the basis). Specifically, an investor who executes an EFR using a bond futures contract and a matched-maturity interest rate swap is taking a view on the direction of the swap spread.

What is an EFR transaction?

An Exchange for Risk (EFR) is a transaction that provides market participants a way to unwind an existing OTC position or to initiate a new OTC position via the futures market. Specifically, an EFR represents the simultaneous exchange of a long/short bond futures position against a receiver/payer interest rate swap position, while the two legs have a related comparable sensitivity to interest rate changes (normally expressed through a hedge ratio based on the basis point value of the futures and the swap).

Conceptually, an EFR is similar to an Exchange for Physical (EFP) transaction, except that at the time the EFR is arranged it involves an exchange of a futures position for an interest rate swap (where the interest rate swap represents the "cash leg" of the EFR) rather than an exchange for a physical bond.

EFR EXAMPLE USING 10-YEAR GOC BOND FUTURES (CGB)

1. Original position: Trader A: Long CGB futures	**1. Original position:** Trader B : Receive fixed swap (OTC position)
2. EFR trade: a. Sell CGB to Trader B b. Buy receive fixed swap from Trader B	**2. EFR trade:** a. Buy CGB from Trader A b. Sell receive fixed swap to Trader A
Result Trader A exchanges a long CGB futures position for a receive fixed swap (OTC position).	**Result** Trader B exchanges a receive fixed swap (OTC position) for a long CGB futures positions.

How to report an Exchange for Risk (EFR) to MX?

An EFR transaction must be reported to the Market Operations Department (MOD) for approval and subsequent input into the SOLA trading system. Approved participants for both the seller and buyer must complete and submit to MOD the EFR/EFP reporting form prescribed by MX.

This form is available at http://www.m-x.ca/efp_formulaire_en.php. If the EFR (or EFP) transaction is executed before the close of the futures contract trading session, the EFR/EFP reporting form must be submitted immediately upon the execution of the transaction. If the transaction is done after the close, the EFR/EFP reporting form must be submitted no later than 10:00 a.m. (Montréal time) on the next trading day.

CONCLUSION

For trading purposes, the futures invoice spread is a simple and efficient way to take a view on the credit risk associated between the Government of Canada bond market and the corresponding matched-maturity interest rate swap. The exposure is the spread between the cheapest-to-deliver bond (CTD) underlying of the futures contract and the corresponding forward starting swap yield.

It is possible to set-up the trade with the new IVSP Bloomberg function and execute an Exchange for Risk (EFR) transaction on-exchange to unwind an existing OTC interest rate swap position or to initiate a new OTC interest rate swap position via the futures markets.

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