

6%

Specifications

Treasury Contract

Spread Trading: The Effect of the Change in Notional Coupon

Contract Prices: December 1999 to March 2000 Spreads Will Be Wide

The change to a 6% notional coupon will affect futures prices. Table 1 shows the prices of the new 6% T-Bond and 10-Year T-Note contracts will be lower (approximately 20% and 15%, respectively) than the corresponding 8% contracts. This shift will have a dramatic effect on the spread between 8% and 6% contracts. The current spread, quarter to quarter, for 8% T-Bond contracts is approximately 16/32. For a spread between the December 1999 and March 2000 T-Bond contracts, the spread will increase to approximately 19 to 20 full points.

Change in Cheapest-to-Deliver (CTD): New CTD May Necessitate Calendar Ratio Spreading

With a new notional coupon, and probable new CTD security, the futures contract's DV01 (dollar value of basis point) is likely to change. Depending on yield levels, the DV01 of the new futures contract may differ enough to necessitate ratio spreading between 8% and 6% contracts. The lower notional coupon results in larger conversion factors. This causes a reduction in prices. On the other hand, the lower notional coupon increases the likelihood the contract will track a longer duration security (which has higher price volatility per dollar). If yield levels increase, the DV01 of the contract may increase enough to make the number of 6% contracts needed for the spread less than the number of 8% contracts. If yields fall, the opposite may occur with the DV01 for the 6% contract lower than that for the 8% contract.

For example (see Table 1), on March 24, 1999, at prevailing yields (+/- 0 bps) the approximate DV01 of the December 1999 Bond contract was \$111.63, while the approximate DV01 of the March 2000 contract (the new 6% contract) was \$109.57. The larger conversion factors for the 6% contract are partially offset by the futures contract tracking a longer duration bond (a bond that has more price movement for a given change in yields). At these yields, the spread ratio is essentially 1-to-1. With a yield increase of 100 bps, the DV01s of the December and March contracts are \$100.75 and \$114.01, respectively. The December-March calendar spread should therefore be approximately 114 December contracts to 100 March contracts (roughly 12-to-10). But if yields are down 100 bps, the ratio would be approximately 110 December contracts per 126 March contracts (roughly 11-to-13).

Change in Cheapest-to-Deliver (CTD): New CTD May Necessitate Intermarket Ratio Spreading

In addition to the intramarket spreads described above, intermarket spreads, such as the NOB, need to take into account the notional coupon change. At currently prevailing yields, the diagonal September 1999 T-Note to March 2000 T-Bond spread would have been very similar to the September T-Note to September T-Bond spread (roughly 11 T-Notes to 7 T-Bonds). However, with a major drop in yields, the September T-Note to March T-Bond spread will be roughly 11-to-7, versus 13-to-7 for the September to September spread.

Essentially the spread relationship, both intra- and intermarket, should not change dramatically. Under extreme yield moves, the addition or subtraction of contracts on the order of 10% to the tails may be necessary. NOB spreads, for example, are often done 2-for-1, which is far more coarse than what the coupon change is likely to cause.

Increased Optionality: Spreads for 2000 Contracts Will Have Optionality

With the current 8% notional coupon, the likelihood of change in CTD from the 11-1/4s of 2015 to another bond is very low. So the prices of futures contracts, and spreads, based on 8% coupons mainly reflect carry. With a change in the notional coupon to 6% there is an increased probability of CTD switching. The value the short has in choosing the bond to deliver will be priced into the futures contract. At the initial listing date for the 6% contracts (end of April), the value of the switching option will be significant. This will have an impact on the spreads involving 6% notional bond contracts. For spreads involving only 6% contracts, the option component could potentially be a large percentage of the spread.

Spread Volatility: Increased Optionality May Contribute to Increased Spread Volatility

Because spreads involving 6% contracts will have an option component, the volatility of the spreads will be affected not only by financing rate volatility but also by changes in the option components value. In high rate volatility environments this component can add to spread volatility. The spreads may behave similarly to spreads during the 1989-1991 period, the last time yield levels were near the coupon level. For instance, during the 1991-1992 period, 17 different bonds were CTD, while during the 1997-1998 period, only two bonds were CTD.

Table 1: Basis Point Scenario Analysis for U.S. Treasury Bond and 10-Year Note Futures Contracts

		Bond Futures			10-Year Futures		
		Sep. 1999	Dec. 1999	Mar. 2000	Sep. 1999	Dec. 1999	Mar. 2000
Futures Prices		120-29	120-12	100-09	114-23	114-08	102-25
+100 bps	CTD Security	10-5/8s of 8/15	10-5/8s of 8/16	6s of 2/26	6-7/8s of 5/06	7s of 7/06	6-1/8s of 8/07
	Approximate Futures DV01	\$100.61	\$100.75	\$114.01	\$61.45	\$62.10	\$63.55
+50 bps	CTD Security	11-1/4s of 2/15	11-1/4s of 2/15	7-1/4s of 8/22	6-7/8s of 5/06	7s of 7/06	6-1/2s of 10/06
	Approximate Futures DV01	\$104.43	\$104.61	\$114.55	\$63.57	\$64.20	\$60.39
0 bps	CTD Security	11-1/4s of 2/15	11-1/4s of 2/15	9s of 11/18	6-7/8s of 5/06	7s of 7/06	6-1/2s of 10/06
	Approximate Futures DV01	\$111.44	\$111.63	\$109.57	\$65.69	\$66.31	\$62.34
-50 bps	CTD Security	11-1/4s of 2/15	11-1/4s of 2/15	10-5/8s of 8/16	6-7/8s of 5/06	7s of 7/06	6-1/2s of 10/06
	Approximate Futures DV01	\$118.45	\$118.66	\$103.59	\$67.81	\$69.47	\$65.26
-100 bps	CTD Security	11-1/4s of 2/15	11-1/4s of 2/15	10-5/8s of 8/16	6-7/8s of 5/06	7s of 7/06	6-1/2s of 10/06
	Approximate Futures DV01	\$126.25	\$126.46	\$110.45	\$69.93	\$71.57	\$67.21