US Treasuries Futures Focus

Interest Rate Strategy

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New Ultra Long Contract

We discuss the changing landscape of the long-dated Treasury curve and LDI risk management with the introduction of ultra-long Treasury bond futures.

We estimate the new contract will have a delivery option value that is about one-quarter of that in the current contract. The ultra-long contract will have a DV01 that is 56% more than the current contract, and a convexity that is about four times higher. These figures suggest the new contract is probably a better instrument for pension and insurance funds.

We compare the new contract with swaps in risk measures. The new contract will likely prevent the 30-year swap spreads from trading too negative.

We highlight the recent cheapening of the 2/2025 CTD relative to neighboring issues. While some cheapening of 2025s is still possible, we believe that the sector is already at an attractive level, as evident in the 11/2021, 2/2025, and 11/2027 spread.

Changing Landscape of Long-Dated Treasury Curve and Risk Management

The announcement of the long-term US Treasury bond futures by the CME Group created excitement in both Treasury cash and futures markets this week. In this article, we estimate the option value and risk measures in the ultra-long bond contract, and how they compare against those in the current bond contract, as well as swaps.[1]

The new contract will start trading after the New Year. We think not having the new contract trading in November and December 2009 makes sense, because it avoids confusion during the futures roll period and market liquidity conditions during the holiday season.

- **Basket composition.** The new contract will have nine issues in the delivery basket in January, including the 11/15/2039 bond that will be auctioned at the November Treasury refunding. The total outstanding of the eligible issues is estimated to be about $209 billion at the start of 2010, about 62% of the total outstanding of the 22 eligible issues in USH0.
- **Option value.** We estimate the new contract will have a delivery option value worth about 2.5 ticks, about one-quarter of the option value in USH0, because ULH0 has fewer deliverables. See Exhibit 1 for the details of the contract and deliverable issues.

[11] The CME Group has not assigned a ticker to the new contract. For the ease of discussion, we use ULH0 as ticker in this article.

Exhibit 1: The ultra long bond futures basket, March 2010 delivery

Bond prices as of 9/25/09. Assume ultra long bond futures price 129-025.

Description	Conv Factor	Deliv Prob	Spot Price	Spot Yield	Repo Rate	Implied Repo	Gross Basis	Theo Gross Basis	Net Basis	Theo Net Basis
T 4.500 02/15/36	0.8045	90%	106-010	4.123%	0.20%	0.20%	2-057	2-085	(0-000)	0-025
T 4.750 02/15/37	0.8344	0%	110-056	4.126%	0.20%	-0.09%	2-151	2-177	0-052	0-080
T 5.000 05/15/37	0.8671	0%	114-141	4.120%	0.20%	0.10%	2-16+	2-193	0-020	0-047
T 4.375 02/15/38	0.7816	5%	103-29+	4.139%	0.20%	-1.48%	3-010	3-035	0-290	0-315
T 4.500 05/15/38	0.7978	0%	106-033	4.134%	0.20%	-1.47%	3-040	3-065	0-293	1-001
T 3.500 02/15/39	0.6594	6%	89-075	4.136%	0.20%	-5.04%	4-037	4-061	2-136	2-157
T 4.250 05/15/39	0.7609	0%	101-293	4.137%	0.20%	-2.86%	3-223	3-247	1-197	1-223
T 4.500 08/15/39	0.7943	0%	106-04+	4.140%	0.20%	-2.39%	3-19+	3-221	1-135	1-162

Source: Credit Suisse

- **Cheapest-to-deliver.** The CTD will be the 4.5s of 2/2036 bond for the ultra-long contract based on current market pricing, whereas the CTD will be the 6.875s of 8/2025 for USH0. The underperformance of the belly of the bond curve relative to the new basket this week was clear, as shown in Exhibit 4. Our basis model assigns a high 90% probability that the 4.5s of 2/2036 bond will be delivered. In fact, the 5s of 5/2037 were the CTD early in the week, but lost the CTD status as they richened.

- **USH0 versus ULH0 risk measures.** The ultra-long contract will have a DV01 north of 2,000 (due to low conversion factors), which is 56% more than the current contract's. There is a much higher convexity value in ULH0, about four times higher than in USH0. These figures suggest the ultra-long contract is a much better instrument for liability-driven investments (LDI), such as pension and insurance funds.

- **Futures versus swaps DV01.** The new ultra-long bond futures will likely appeal to LDI. Our analysis shows that the risk in ULH0 is about one-quarter more than the risk in 30-year swaps. See Exhibit 2. This is a significant increase from the risk in USH0, estimated at about 1,331, which is roughly below the risk in 20-year swaps.

Exhibit 2: Risk measures on swaps and Treasury bond futures

	DV01	Convexity
15yr Swap	1,107	164
25yr Swap	1,531	342
30yr Swap	1,684	432
USH0	1,331	112
ULH0	2,079	442

Source: Credit Suisse

- **Futures versus swaps convexity.** Convexity in ULH0 is similar to that in 30-year swaps. A larger convexity value helps to extend gains in a rally, and to limit losses in a sell-off. For larger yield moves, we estimate the percentage change in DV01 in swaps and futures in Exhibit 3. In large moves, the percentage change in risk in ULH0 could be three times larger than in USH0.

- **Swap spreads.** Will 30-year swap spreads be less negative? Maybe. We think LDI investors will have a choice between 30-year swaps and ultra-long Treasury bond futures as a longer-dated investment/hedging vehicle. The new contract will probably prevent 30-year swap spreads from trading too negative, such as the -40bp level seen in late 2008 and May 2009. If spreads get too negative, LDI investors will probably prefer the ultra-long bond futures instead of swaps, and vice versa. In fact, 30-year swap spreads had a knee-jerk reaction on Tuesday, September 22, trading as negative as -6.5bp, before giving it all back later in the week.

- **Which one contract will ultimately prevail?** It's too early to draw any conclusion, in our view. It depends upon whether most of the investors in the current contract will switch. The CME group has suspended trading indefinitely in USZ0, as well as corresponding Standard Options and Flex Options contracts. We think each contract has its supporters. For example, the current contract has been around for a long time. The ultra long has its special appeal to LDI investors and is a better hedging vehicle for the bond than the current contract. The compromise could be that they will co-exist, with some liquidity in the 15-year sector shifting out to the 25-year sector. In this scenario, there are three major liquidity points in the long end: 15-year, 25-year, and, of course, the bond.

- **Current bond futures CTD is cheap.** Bond futures were very rich relative to neighboring issues in late 2008 and early 2009. However, the richness started to abate in mid 2009, and the 2025 CTD has cheapened significantly over the past couple of months, probably in anticipation of the ultra-long bond contract. The recent outperformance of the 2020-2021 maturity (as discussed in this report last week) has exacerbated the cheapness of the 2025s, in our view. While some cheapening of 2025s is still possible, we believe that the sector is already at an attractive level, as evident in the 11/2021, 2/2025, and 11/2027 spread in Exhibit 5.

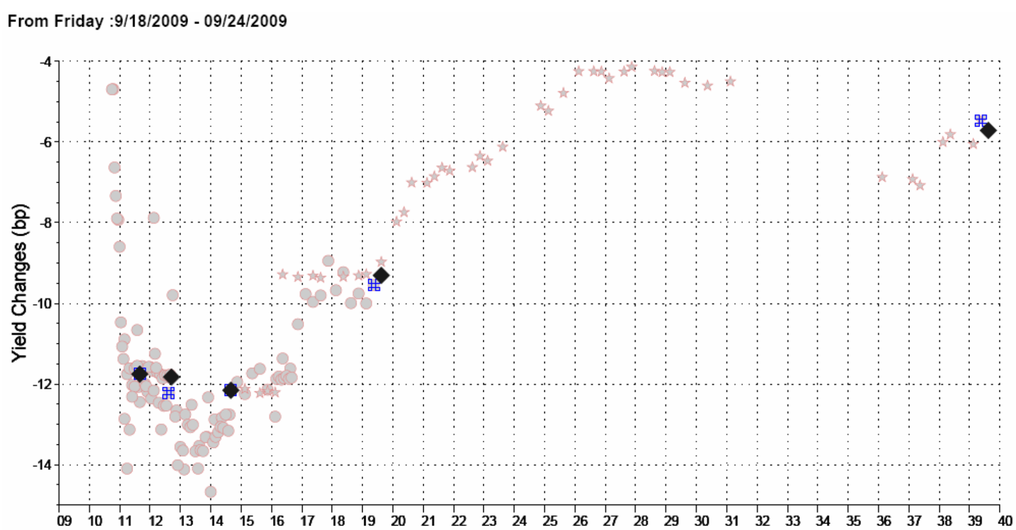
Exhibit 3: Change in DV01 on swaps and Treasury bond futures in yield curve scenarios

	30yr Swaps		25yr Swaps		15yr Swaps		ULH0		USH0	
Shifts (bp)	DV01	% Chg from Base	DV01	% Chg from Base	DV01	% Chg from Base	DV01	% Chg from Base	DV01	% Chg from Base
100	13.178	-22%	12.360	-19%	9.617	-13%	16.956	-18%	12.552	-6%
90	13.500	-20%	12.625	-18%	9.753	-12%	17.283	-17%	12.578	-5%
80	13.832	-18%	12.897	-16%	9.891	-11%	17.620	-15%	12.613	-5%
70	14.173	-16%	13.174	-14%	10.032	-9%	17.967	-13%	12.659	-5%
60	14.523	-14%	13.458	-12%	10.174	-8%	18.325	-12%	12.716	-4%
50	14.882	-12%	13.749	-10%	10.319	-7%	18.694	-10%	12.785	-4%
40	15.252	-9%	14.047	-8%	10.465	-5%	19.075	-8%	12.865	-3%
30	15.631	-7%	14.352	-6%	10.614	-4%	19.468	-6%	12.956	-3%
20	16.022	-5%	14.663	-4%	10.765	-3%	19.873	-4%	13.057	-2%
10	16.423	-2%	14.983	-2%	10.919	-1%	20.291	-2%	13.168	-1%
0	16.835	0%	15.309	0%	11.074	0%	20.721	0%	13.290	0%
-10	17.258	3%	15.644	2%	11.232	1%	21.165	2%	13.421	1%
-20	17.693	5%	15.986	4%	11.392	3%	21.622	4%	13.560	2%
-30	18.141	8%	16.337	7%	11.555	4%	22.092	7%	13.709	3%
-40	18.601	10%	16.696	9%	11.720	6%	22.575	9%	13.865	4%
-50	19.073	13%	17.063	11%	11.888	7%	23.072	11%	14.028	6%
-60	19.559	16%	17.439	14%	12.058	9%	23.584	14%	14.199	7%
-70	20.059	19%	17.824	16%	12.230	10%	24.109	16%	14.376	8%
-80	20.572	22%	18.219	19%	12.406	12%	24.649	19%	14.560	10%
-90	21.100	25%	18.622	22%	12.583	14%	25.203	22%	14.749	11%
-100	21.643	29%	19.036	24%	12.764	15%	25.772	24%	14.945	12%

Source: Credit Suisse

Exhibit 4: The announcement of ultra-long bond futures cheapened the belly of the bond curve this week

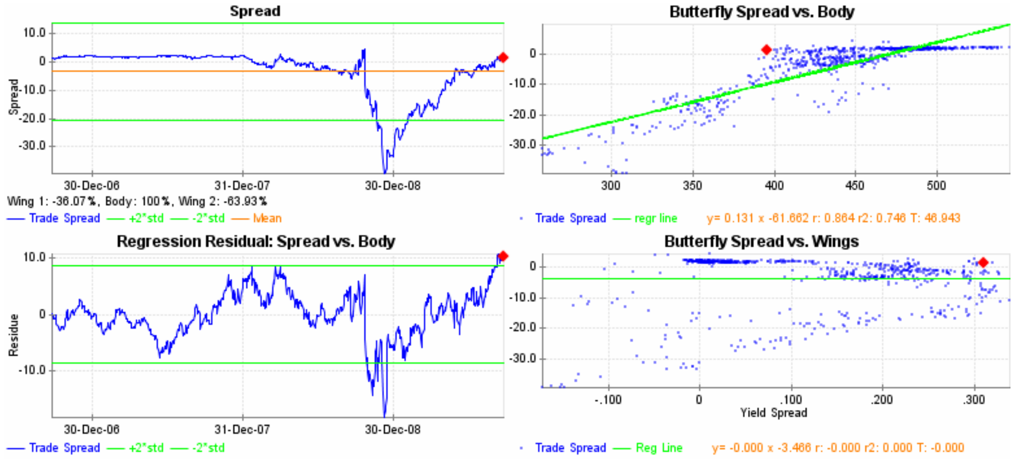
Yield change in coupon Treasuries



Source: Credit Suisse

Exhibit 5: The 2/2025 CTD bond has cheapened versus neighboring issues

11/2021, 2/2025, 11/2027 spread, regression weighted



Source: Credit Suisse

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