J.P.Morgan

US Treasury Market Daily

Tweaking our fair-value frameworks

- Treasury yields opened lower, in sympathy with the moves in futures markets yesterday, but retraced these moves throughout the US trading session, finishing 1-2bp higher as risk assets rallied and positive news emerged on Brexit negotiations.
- We make revisions to our Treasury fair value models in order to more appropriately reflect the factors that drive Treasury yields.
- The 5-year note backs up within the Aug-Oct range after retesting a confluence of resistance at 1.30-1.35%, which includes the neckline for the multi-year yield base pattern that the market broke down from in 2016. Tactically, the tone stays negative while cheaper than the 1.50% 50-day MA and 1.42% pattern breakdown.

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Statistics for various on-the-run Treasury yields, curve spreads, and TIPS breakevens

		Close	1d chg (bp)	WTD chg (bp)	YTD chg (bp)	3m avg	3m low	3m high	3m pctl.
Yields (%)	4wk	1.81	6.5	6.5	-61.7	1.97	1.66	2.12	32%
	13wk	1.69	2.0	2.0	-76.5	1.93	1.67	2.12	4%
	26wk	1.69	1.0	1.0	-86.4	1.90	1.65	2.09	9%
	52wk	1.67	0.5	0.5	-97.2	1.80	1.59	2.02	18%
	2y	1.62	0.8	0.8	-77.2	1.63	1.39	1.89	47%
	5y	1.60	2.1	2.1	-92.1	1.56	1.31	1.86	52%
	10y	1.77	1.7	1.7	-93.0	1.72	1.46	2.08	50%
	30y	2.23	1.7	1.7	-81.6	2.21	1.94	2.61	44%
Curves (bp)	2s/5s	-2.4	1.2	1.2	-14.8	-6.8	-13.5	1.3	75%
	5s/10s	17.2	-0.4	-0.4	-1.0	15.8	9.3	25.2	50%
	2s/10s	14.8	0.8	0.8	-15.8	8.9	-3.7	26.5	61%
	10s/30s	46.1	0.0	0.0	11.4	48.9	43.9	55.9	18%
TIPS BEs (bp)	5y	134.5	-0.5	-0.5	-15.0	142.0	125.7	161.6	24%
	10y	156.7	0.6	0.6	-14.8	161.0	147.9	180.7	27%
	30y	163.2	0.8	0.8	-18.6	166.0	155.4	184.7	26%

Source: J.P. Morgan

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Market views

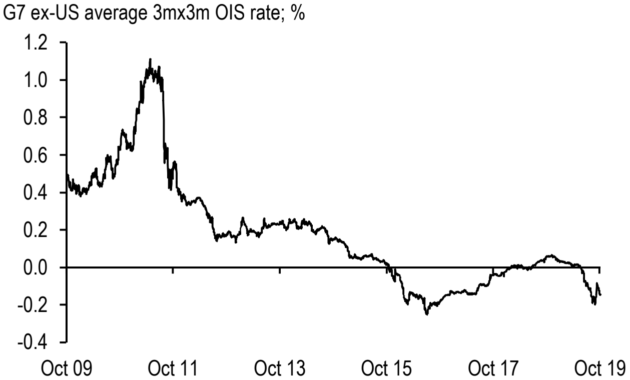
We first published the US Treasury Market Daily five years ago today and wondered whether it was auspicious to launch a Treasury-focused publication the same day as the "flash rally." On the fifth anniversary of this publication, we would like to thank you, our readers. Without your insightful questions and ongoing dialogue, we would not be able to consistently publish high-quality content on the Treasury market.

Treasury yields opened lower, in sympathy with the moves in futures markets yesterday, but retraced these moves throughout the US trading session, finishing 1-2bp higher. The move to higher yields was supported by a strong rally in risk assets as well as media reports indicating the UK and EU had made progress on negotiations, in an effort to agree on a draft deal before the EU summit later this week. Tomorrow the calendar picks up with a number of data releases: we expect retail sales increased 0.2% in September.

We have historically modelled Treasury yields and the yield curve using a number of economic, Fed, and technical variables that we have identified as the main drivers of the Treasury market. While each of our fair-value models have continued to exhibit relatively high explanatory power, we think now is the time to make minor adjustments to our frameworks in order to more appropriately reflect the factors that drive Treasury yields.

Exhibit 1: DM policy expectations have approached the lows previously seen in 2016, and we think the scope for further declines in expectations is limited…

G7 ex-US average 3mx3m OIS rate; %



Source: J.P. Morgan

Exhibit 2: …but the share of negative yielding government debt in the DM has grown significantly in 2019…

Negative yielding debt as share of GBI-DM; %

Source: J.P. Morgan

First, we make some small changes to the global factors we use in our 10-year fair-value model. For a number of years, we have used the G7 ex-US average 3mx3m OIS rate to control for global monetary policy expectations, in addition to Fed policy expectations (**Exhibit 1**). Our economists have recently argued that the effective lower bound for policy rates is probably lower than anything that has been achieved before, but there are likely to be constraints on how effectively further declines could be transmitted to the real economy (see *G4 central banks in the next recession: Confronting limited monetary efficacy*, Bruce Kasman et al., 9/10/19). Thus with limited scope for negative interest rate policy to be used more aggressively, and average policy rate expectations outside the US already significantly negative, we think this variable is likely to be less efficacious in modeling Treasury yields going forward.

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Nevertheless, we think global monetary policy conditions are likely to be meaningful drivers of US yields, and DM central banks will respond more aggressively with the use of QE and forward guidance. The stock of negative yielding sovereign debt remains above $12tn, comprising approximately 31% of Developed Market government bonds, as shown in **Exhibit 2** (see *Negative Yield Index Monitor*, Boyang Liu, 9/12/19). When we replace G7 ex-US OIS rates with this factor in our fair-value framework, we find it to be the second most statistically significant, following just 3mx3m OIS rates. **Moreover, the regression fit rises from 92% to 95%, and the standard error declines from 12bp to 10bp (Exhibit 3).**

Exhibit 3: …adding this variable to our framework shows an improved fit and a lower standard error. Treasury yields remain relatively fairly valued at current levels

Updated J.P. Morgan 10-year Treasury fair-value Model*; units as indicated

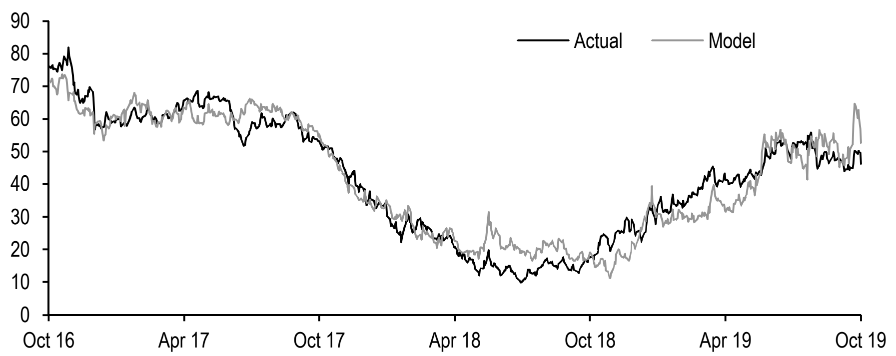
Variable	Coefficient	T-stat	Current
Intercept	0.388	5.0	
3m3m OIS rate; %	0.402	83.2	1.39
1y-ahead Growth Forecast; %	0.165	9.1	1.70
5yx5y Inflation swap rate; %	0.603	21.5	1.90
Share of negative yielding DM government debt; %	-0.021	-27.2	31.2
CFTC positions; 3yr z-score	-0.070	-24.0	1.0
R-squared; %			95.0%
Standard Error; bp			9.6
Residual; bp			4.6

* Regression from 11/7/14-10/11/19

Source: J.P. Morgan, CFTC, Blue Chip

Exhibit 4: Our fair-value framework has been highly effective in modeling the Treasury curve over the past decade but has diverged more recently

10s/30s Treasury curve versus model implied fair value*; %



* Fair-value model for 10s/30s Treasury curve derived from a regression over the last 3 years. The model predicted value is given by -49.68*2-year Treasury yields (%) – 15.35* 5yx5y Inflation swap rate (%) – 17.85* 1-year ahead budget deficit expectations as a share of GDP (%)—2.11* Share of negative yielding debt in GBI-DM (%) + 145.48. R-squared = 92.2%, Standard error = 5.2bp

Source: J.P. Morgan

We make a similar adjustment in our 10s/30s fair-value framework, adding the share of negative yielding government debt in the GBI-DM to our existing model. As a result, the regression fit improves from 89% to 92% and the standard error decreases by 1bp to 6bp. **Exhibit 4** shows this model has done a reasonably good job of tracking the curve over the last number of years. However, the exhibit also shows that over the last few weeks the 10s/30s curve has diverged somewhat from its drivers and has not steepened as much as would be implied by the decline in front-end yields. As we discussed recently, we think technicals can explain some of this

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divergence as speculative steepener positions remain somewhat large relative to medium-term averages (see *Treasuries*, 10/4/19).

Exhibit 5: Replacing speculative positions in 2-year futures with a broader measure of positions improves the fit in our fair-value framework for 2-year Treasury yields

Updated J.P. Morgan 2-year Treasury fair-value Model*; units as indicated

Variable	Coefficient	T-stat	Current
Intercept	30.847	54.4	
3m3m OIS, bp	0.911	233.0	
CFTC positions; 3yr z-score	-7.019	-27.2	
R-squared; %			98.0%
Standard Error; bp			10.9
Residual; bp			1.0

* Regression from 11/7/14-10/11/19

Source: J.P. Morgan, CFTC

Finally, we make minor adjustments to our 2-year fair-value framework: we have long modeled front-end yields using a combination of Fed expectations and investor positioning, but the explanatory value has fallen recently. In particular, speculative positions in just TU futures have been less statistically significant, but we find that the broader measure of speculative positions across all interest rate futures has been highly explanatory across shorter and longer-term horizons. Note that this is the same factor we use for positioning in our 10-year framework as well. We also remove the factor that projected changes in 2-year auction sizes, since auction sizes have been unchanged for the past year now and should remain stable into next year. We present our updated framework in **Exhibit 5:** it shows that medium-term Fed expectations and a broader measure of positioning in futures explain more than 97% of the variation in 2-year yields over the past 5 years. In short order, these updated frameworks will be available in our daily "US Cash Interest Rate Product Analytics Package," available on J.P. Morgan Markets.

Technical highlights

The **5-year note** backs up after rejecting a confluence of resistance parameters in the **1.30s** that include the Jan-Jul .618 swing objective, Sep 3 yield low, and the neckline that contained a multi-year bearish reversal pattern on the monthly chart (**Exhibit 6**). The extreme overbought conditions realized this summer, double yield bottom rejection of that key longer-term chart inflection, and pro-cyclical rotation in global equities on the heels of positive geopolitical headlines suggest the market may be forming a broader reversal pattern ahead of a more significant retracement to higher yield levels. Nearby support rests at the **1.63%** late-Sep range cheaps and then **1.69%** Oct 2018 channel trend line. The **1.765%** Sep 13 yield high roughly held the area from which the market broke out from in early-Aug. While that zone can contain yields for several weeks this quarter, a continued pro-cyclical equity rotation could point to an eventual extension to the **1.915-1.94%** Jun-Jul range cheaps, **2.045%** 200-day MA, and **2.11-2.12%** Mar-May range riches. That also marks a key pattern inflection on the chart from 2018. To lower yields and through **1.305%**, next resistance comes in at the **1.14%** monthly trend line.

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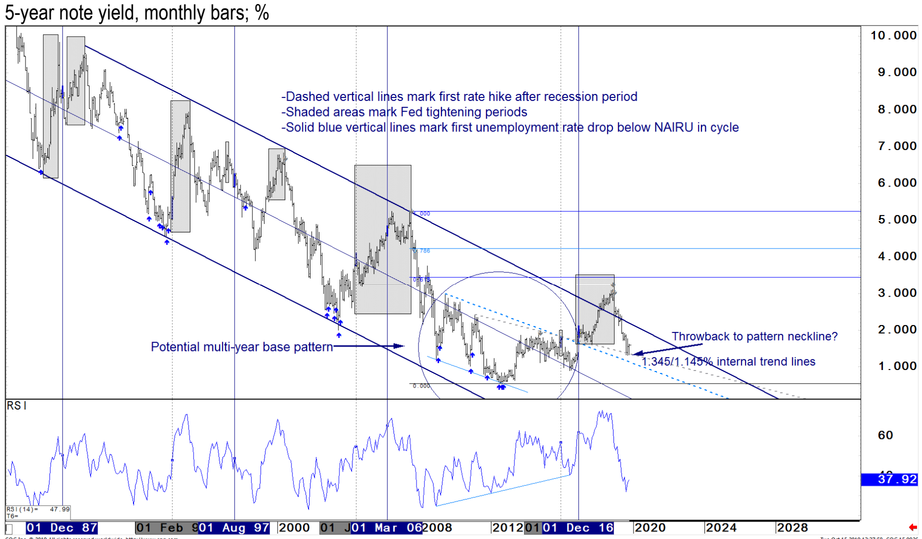
Exhibit 6: The 5-year note backs up within the Aug-Oct range after retesting a confluence of resistance at 1.30-1.35%, which includes the neckline for the multi-year yield base pattern that the market broke down from in 2016. Tactically, the tone stays negative while cheaper than the 1.50% 50-day MA and 1.42% pattern breakdown

5-year note yield, monthly bars; %



Source: J.P. Morgan, CQG

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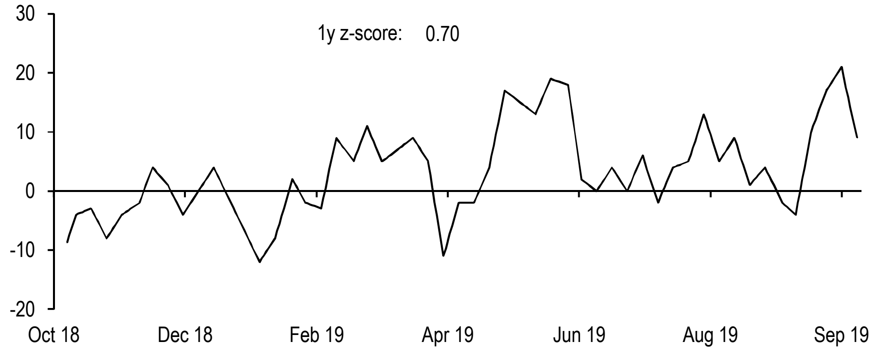
Appendix: Position technicals overview

Exhibit A1: J.P. Morgan Treasury Client Survey

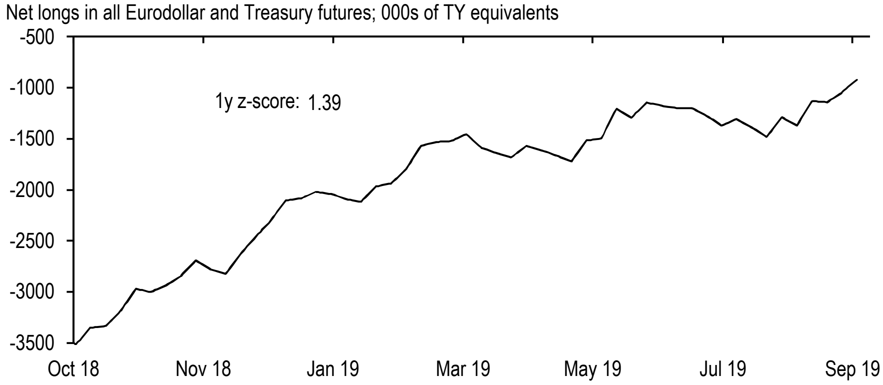
Net longs; %



Source: J.P. Morgan

Exhibit A2: CFTC non-commercial positions

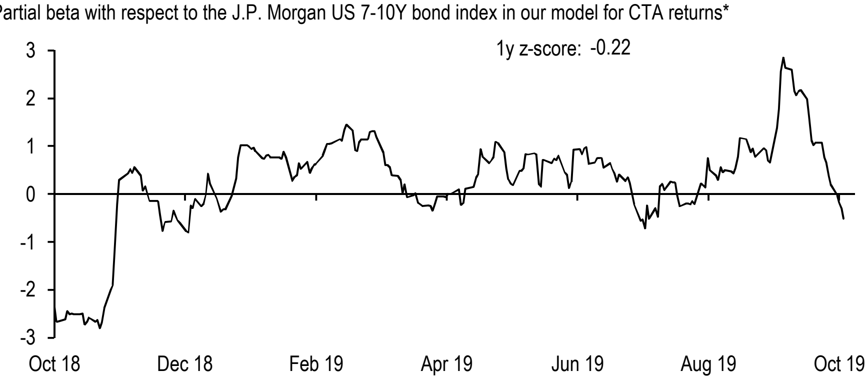
Net longs in all Eurodollar and Treasury futures; 000s of TY equivalents



Source: CFTC

Exhibit A3: CTA exposure to 10-year Treasuries

Partial beta with respect to the J.P. Morgan US 7-10Y bond index in our model for CTA returns*



* Model is a 1-month regression of daily excess returns on the CTA index versus daily excess returns on 1) J.P. Morgan US 7-10Y bond index, 2) J.P. Morgan ex-US Global Bond Index, 3) S&P500 index, 4) J.P. Morgan global cash index, and 5) Goldman Sachs Commodities Index

Source: Bloomberg, SG, J.P. Morgan

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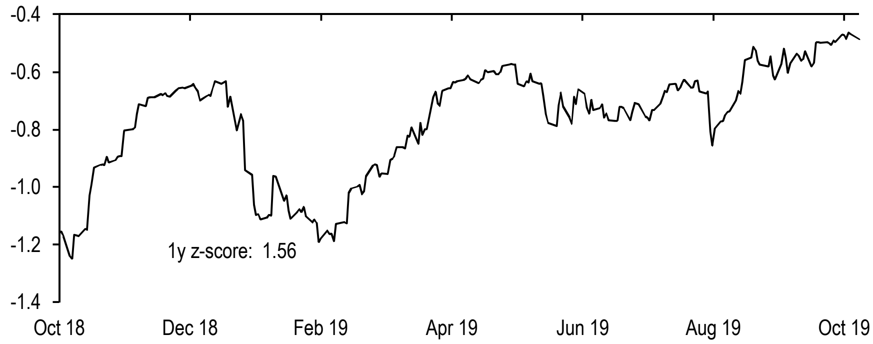
Exhibit A4: Active Core Bond Fund* Managers' exposure to 10-year Treasuries

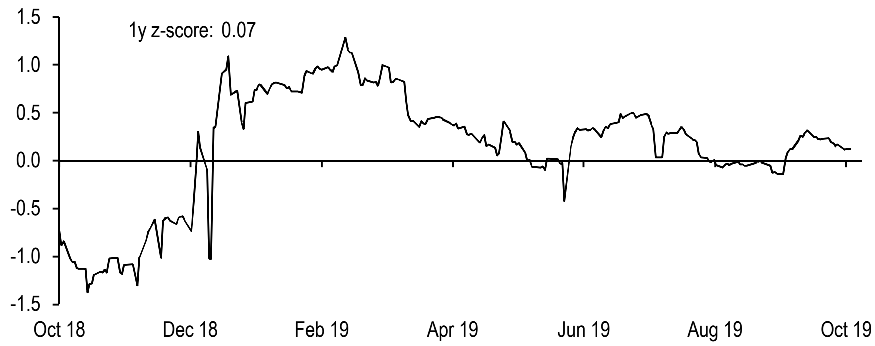
Partial beta with respect to 10-year US Treasury yields in our model for active bond fund excess returns**



* The core bond fund index is comprised of the 20 largest (by assets under management) actively-managed US core bond funds
** Model is a 3-month regression of daily excess returns on the bond fund index versus daily changes in 1) 10-year US Treasury yields, 2) 5s/30s Treasury curve, 3) constant-maturity 5-year CDX.IG spread, 4) MBS Libor option-adjusted spread, and 5) 3Mx10Y swaption volatility; Source: Bloomberg, J.P. Morgan

Exhibit A5: Macro Hedge Fund exposure to 10-year Treasuries

Partial beta with respect to the J.P. Morgan US 7-10Y bond index in our model for macro hedge fund returns*

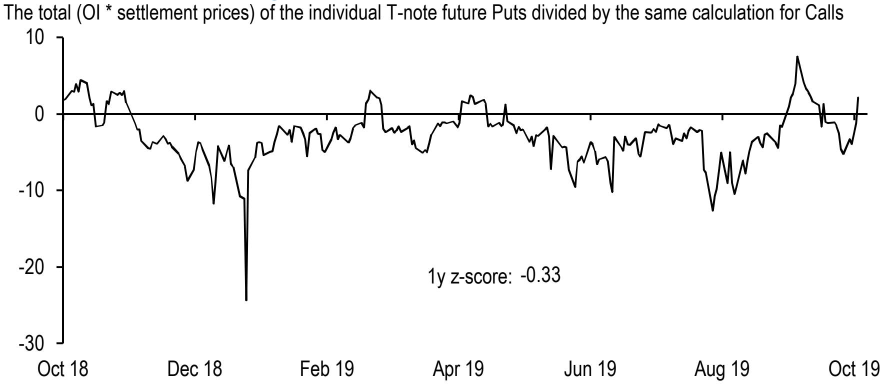


* Model is a six-week regression of daily excess returns on the HFRX Macro/CTA index versus daily excess returns on 1) J.P. Morgan US 7-10Y bond index, 2) J.P. Morgan ex-US Global Bond Index, 3) S&P 500 equity index, 4) MSCI G7 ex-US equity index, 5) J.P. Morgan global cash index, and 6) Goldman Sachs Commodities Index.

Source: Bloomberg, HFR, J.P. Morgan

Exhibit A6: T-note dollar weighed Put/Call ratio

The total (OI * settlement prices) of the individual T-note future Puts divided by the same calculation for Calls



Source: CFTC, Bloomberg, CQG, CME, J.P. Morgan

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