Question: Over the 2000-2016 period, how special are U.S. Treasuries relative to other G10 sovereign bonds, as measured by the “U.S. Treasury premium”: (Swap-implied dollars yield paid by foreign governments)-(Treasury yield)

- A positive U.S. Treasury premium means that Treasuries have low yields (are special).
- A negative value means that the U.S. Treasuries are borrowing at high yields.
- Suggestion: How about calling it a “US Treasury discount” instead?
Answer:

(1) Short Treasuries were special before crisis and are still special.
(2) Medium and long Treasuries were special before crisis but now are not special.
Economics:

(1) Specialness of short Treasuries is driven by their high liquidity.

(2) Specialness of medium/long Treasuries is not robustly related to liquidity. Supplies of Treasuries matter, but that doesn’t tell us why medium/long Treasuries were special or why they no longer are special.
- Perhaps the world is swamped with medium/long Treasuries? Probably not: Yields on medium/long Treasuries are still much below RefCorp (and Aaa) yields.

Figure 9: Five-Year Average U.S. Treasury Premium vs. Refcorp-Treasury spread

We are left without an explanation of what happened to make medium/long Treasuries less special, relative to the USD rate G10 governments can borrow at.
Comment 1. Be more precise in describing the main finding

From the abstract:

“We find that the U.S. Treasury Premium was approximately 21 basis points at the five-year horizon prior to the Global Financial Crisis and has disappeared since the crisis with the post-crisis mean at -8 basis points. We argue that the decline in the long-term U.S. Treasury Premium was largely driven by the decline in the liquidity premium component of U.S. Treasuries relative to foreign government bonds.”

This is not good writing since the evidence on agency-Treasury spreads shows that the medium/long US Treasury premium is in fact not robustly explained by liquidity spreads in the US or abroad.

The statement comes from calling the residual in the decomposition liquidity (what’s not CIP deviations or default).

Be upfront:  You didn’t find the answer yet, but it’s still an interesting fact!  
Call a residual a residual ...
Comment 2. Add results based on a simpler decomposition

• The US Treasury premium is (imposing no structure):

\[
\begin{align*}
y_{nt}^{JPS} - y_{nt}^{USD} &= y_{nt}^{JPY} - y_{nt}^{USD} - \frac{1}{n} (f_{t+n} - s_t) \\
&= y_{nt}^{JPY} - y_{nt}^{USD} - \left[ irs_{nt}^{JPY} + bs_{nt}^{JPY/USD} - irs_{nt}^{USD} \right] \\
&= (irs_{nt}^{USD} - y_{nt}^{USD}) - (irs_{nt}^{JPY} - y_{nt}^{JPY}) - bs_{nt}^{JPY/USD}
\end{align*}
\]

I’ll show below that the main result of the current paper is driven by relative swap spreads, not the \textit{bs} term. That’s useful to know because:

a) It tells us \textit{what we need to explain to understand current paper’s finding}
b) It implies that current paper \textit{contributes to literature on negative US swap spreads}: Explanations for those have to be (more) applicable to US than foreign swap spreads
c) Du, Tepper and Verdelhan (2017) already study the –bs (called τ in this paper): CIP deviation based on swaps.
Comment 3. Drivers of negative long US Swap-Treasury spreads and US Treasury premium

Given that long US Treasuries have lost their specialness relative to swaps but not relative to other safe long US securities (RefCorp, Aaa corporate):

The most plausible explanation is that something is driving down long US swap rates, more so than foreign swap rates.
1. Decreased supply of paying fixed in US interest rate swaps?

   - **Fannie/Freddie** used to hold (long) MBS on their balance sheet. They would using swaps to hedge: Pay fixed, receive floating
   Now, the **Fed instead holds a lot of MBS and it doesn’t hedge**.

2. Increased demand for receiving fixed in US interest rate swaps?

   - Strong issuance of mainly fixed-rate long bonds by **US corporations**: Want to hedge using swaps: Pay floating, receive fixed
   - Underfunded **US pension plans** with duration mismatch: Want to add duration using swaps: Pay floating, receive fixed

3. Reduced credit risk in US swaps?

   - **Central clearing of swaps** removes counterparty risk

4. Regulation-induced reduced dealer willingness to accommodate supply/demand imbalances in the swap market
1. Decreased supply of paying fixed in US interest rate swaps?

Potentially large effect of MBS reallocation on supply of paying fixed in swaps:

- Who else sold MBS to the Fed? Did those investors hedge?
- What happened to US swap spreads on relevant QE dates? Any Fannie/Freddie event dates that could be exploited?
- Is this effect specific to the US – seems like it might be?

Source: https://www.treasury.gov/connect/blog/Pages/Examining-Swap-Spreads-and-the-Implications-for-Funding-the-Government.aspx
2. Increased demand for receiving fixed in US interest rate swaps?

Potentially large effects of increased corporate hedging given high issuance:

- Given earlier US lift-off is this effect stronger for the US (corporations locking in low long rates before liftoff)?
Pension funds:

Klingler and Sundaresan (2016): Underfunded pension funds prefer to hedge their duration risk with swaps rather than buying Treasuries:
- The swap requires only modest investment to cover margins.
- Thus, the use of swaps allows the underfunded pension funds to invest their scarce funds in assets (such as stocks) with higher expected return than Treasuries.

Their evidence suggests that while this story is important for 30-year swaps it’s less important for 10-year swaps
Figure 2: Size of pension liabilities and long-term Interest Rate Swaps: This plot illustrates that the total unfunded liabilities of private as well as state and local government employee defined-benefit (DB) pension plans are qualitatively similar to the gross market value of interest rate swaps denominated in US dollars with maturity greater than five years. The amounts are in billions of dollars, not seasonally adjusted. (Source: BIS and financial accounts of the U.S.)
Figure 5: Relationship between 30-year swap spreads and the aggregate funding status of DB pension plans. The lower panel shows the time series of the two variables, wherein the black solid line is the 30-year swap spread (left-hand axis) and the blue line with dots is pension funds’ underfunded ratio (right-hand side). The grey shaded areas indicate periods where pension funds are fully funded or over-funded. Data on pension fund underfunding ratios are obtained from the financial accounts of the U.S. and the underfunding ratio is computed as indicated in Equation (16).
Table 4: **Pension fund underfunding and swap spreads with different maturities.** This table reports results from regressions of quarterly changes in swap spread with 2, 5, 10, and 30 years to maturity on the indicated variables. $\Delta UFR_t^+ (\Delta UFR_t^-)$ is the change in the underfunding ratio of private and local government defined benefit pension funds as defined in Equation (16), conditional on pension funds being underfunded (funded) at time $t$. $\Delta LR Spread_t$ is the change in the quarter-end difference between the 3-month Libor rate and 3-month General Collateral repo rate. The numbers in parenthesis are heteroskedasticity-robust $t$-statistics. ***, **, and * indicate significance at a 1%, 5%, and 10% level respectively. The observation period is Q3 1994 – Q4 2015 with 5 missing observations between Q4 1997 and Q4 1998 due to missing repo rates.

<table>
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<th>2 Year</th>
<th>5 Year</th>
<th>10 Year</th>
<th>30 Year</th>
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</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.01</td>
<td>-0.46</td>
<td>-0.73</td>
<td>-1.05</td>
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<tr>
<td></td>
<td>(0.01)</td>
<td>(-0.47)</td>
<td>(-0.66)</td>
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<td>$\Delta UFR_t^+$</td>
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<td>0.04</td>
<td>-0.31</td>
<td>-1.32***</td>
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<td>(-0.12)</td>
<td>(0.10)</td>
<td>(-0.81)</td>
<td>(-3.49)</td>
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<tr>
<td>$\Delta UFR_t^-$</td>
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<td>0.04</td>
<td>-0.15</td>
<td>-0.57</td>
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<td></td>
<td>(0.17)</td>
<td>(0.11)</td>
<td>(-0.23)</td>
<td>(-0.83)</td>
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<tr>
<td>$\Delta LR Spread_t$</td>
<td>0.35***</td>
<td>0.19***</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>(5.42)</td>
<td>(3.15)</td>
<td>(1.26)</td>
<td>(1.30)</td>
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<tr>
<td>Observations</td>
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<td>81</td>
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<tr>
<td>Adjusted R²</td>
<td>0.56</td>
<td>0.25</td>
<td>0.01</td>
<td>0.15</td>
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</table>
Evidence from a regulatory change in Denmark (Greenwood and Vissing-Jorgensen, “Preferred Habitat Demand and Global Yield Curves”, in progress) provides additional evidence that hedging by pension funds and insurance companies is a strong driver of swap rates at the long end:

- In June 2012, following sharp reductions in bond yields, Denmark changed the incentives of pension funds and insurance companies to hedge fluctuations in long rates:

  Liabilities of pension funds and insurance companies beyond 20 years would be discounted at rates that were higher and less sensitive to market interest rates than previously (discount rate from 20 years out was extrapolated to a fixed rate).

- Large effect on swap rates:
  30-year forward rates (based on swaps) were about 1 pct point below 10-year forward rates before the reform. This 30 minus 10 year forward rate yield spread was reduced by about 50 basis points.
30-year forward rate minus 10-year forward rate, 2012
3. Reduced credit risk in US swaps?

- According to Treasury blog, the US started central clearing of swaps several years before Europe. What about other G10 countries?
- But it doesn’t seem like this effect is large – spreads between centrally cleared and non-cleared swaps are small:

Source: https://www.td.com/document/PDF/economics/special/InterestRateSwap.pdf
4. Reduced dealer willingness to accommodate supply/demand imbalances in the swap market

Non-risk weighted leverage ratios (called supplementary leverage ratio (SLR) in the US):

- Designed to overcome manipulation of capital requirements but now under fire for preventing dealers from eliminating various price distortions, including negative swap spreads (e.g. Duffie (2016)).
- 5% for the US, 3% for European banks, consistent with more negative swap spreads in the US
FT, last week:

The suggestion that regulators tweak the supplementary leverage ratio (SLR) has already moved markets, according to Credit Suisse — see Figure 2 below, on the right:

https://ftalphaville.ft.com/2017/06/22/2190462/the-good-times-are-back-for-treasury-market-balance-sheet-maybe/
Comment 4. Cross-country patterns are dominated by bs term. Document what’s different from Du, Tepper and Verdelhan (2017)

\[
y_{nt}^{JPY,S} - y_{nt}^{USD} = y_{nt}^{JPY} - y_{nt}^{USD} - \frac{1}{n} (f_{t,t+n} - s_t)
\]

\[
= y_{nt}^{JPY} - y_{nt}^{USD} - \left[ irs_{nt}^{JPY} + bs_{nt}^{JPY/USD} - irs_{nt}^{USD} \right]
\]

\[
= (irs_{nt}^{USD} - y_{nt}^{USD}) - (irs_{nt}^{JPY} - y_{nt}^{JPY}) - bs_{nt}^{JPY/USD}
\]

- Countries with high bs (AUD, NZD) will have low synthetic dollar yields and thus US Treasury premia.

- Unless there are interesting cross-country differences in foreign Swap-Treasury spreads, there is little new in this part relative to the earlier work.
5-year bs from Du et al (2017)

5-year synthetic dollar yields
2010-2016 5-year CIP deviations:

Correlation=0.89
Du, Tepper and Verdelhan (2017) already show that in the cross-section, both the bs term (LIBOR CIP deviation) and the US Treasury premium are driven by differences in the level of interest rates (to compensate dealers for accommodating reach for yield).
Comment 5. Add more motivation

“The advantage of this measure relative to existing measures of the liquidity and safety premia of U.S. Treasuries is that it captures the extent to which the U.S. government is special as a debt issuer relative to other near-risk-free developed sovereign governments rather than large U.S. agencies or corporates.”

Suggestion: Explain why this is an advantage
Clarify who should be most interested in the new fact
The paper shows us that at medium/long maturities, in USD or any other currency:

\[
\begin{align*}
&y(\text{Japanese government bond, swapped to USD}) \\
&> y(\text{US Treasury bonds, in USD}) \\
&> y(\text{Australian government bond, swapped to USD})
\end{align*}
\]

**Not directly actionable for debt managers:**

- The Australian government would be able to make low USD payments if it swapped payments on AUD debt to USD, but it would have **exchange rate risk**

**May not be worrisome for debt managers:** Is the US Treasury to blame for its apparently high relative borrowing costs?

- No, in that Treasuries are as liquid as ever (relative to other US bonds) and the results are not about increased US credit risk

- Instead, forward exchange rates (implied by interest rate swaps and cross-currency basis swaps) are such that Australia could borrow at low yields in USD. That’s not a concern for the US.
The results are potentially much more interesting for *investors*:

- Any investor holding Treasuries to maturity should prefer Japanese government bonds to US Treasuries to Australian government bonds

- Whatever currency an investor wants to be paid in, the ranking is the same

- Suggestion: Show (additional) results adjusting only for CDS, not LIBOR CIP deviations. For an investor, the forward rates implied by the LIBOR CIP deviations are what they are.

The results are also potentially important for *regulators*:

- Do they indicate excessive banking regulation?