From:
Sent: Wednesday, 4 March 2020 8:24 AM
To: DEBELLE, Guy
Cc: KENT, Christopher; JONES, Bradley; PLUMB, Michael; BOGE, Matthew

Subject: Market Function today - US Treasuries - 3 March 2020 [SEC=UNCLASSIFIED]

Hi all

It was an big day in US Treasuries in terms of the yield moves today and we had a discussion with some contacts about the moves and market function.

On the move, the 10 year yield as I write has declined by 17 basis points and touched a new low in yield of 0.90 per cent in a pretty abrupt move. (The 2-year is down 20 basis points.)

Contacts gave some mixed descriptions of market conditions but volunteered or agreed that illiquidity contributed to the size of the moves. Some main points from some discussions:

- Contacts agreed that generally throughout the day there was 2-way pricing in Treasuries but at wider than normal bid offer spreads in places (and some opted not to describe conditions as broken).
- Conditions away from on the runs and even in longer duration on the runs definitely saw some illiquidity compared to what is expected of this market. (some did volunteer that today things were broken but were mixing a description of stressed but not closed Treasury markets with what they regarded as an overdone market move given the pace of change of fundamental developments).
- Liquidity was also more difficult swaps where bid offer spreads also moved wider than normal (but two way pricing was reportedly still available) –there is normally very good good liquidity in swaps (and today was unusually wide compared to what have been somewhat skittish conditions over the past week).
- A sharp decline in the 10 year yield saw some gapping in 10-year futures (7 ticks) and a very quick 6 basis decline in the benchmark 10-year note yield followed by a quick 4 basis point retracement. Contacts noted a few things going on. A (20 minute) earlier breach (for the first time) of 1.00 per cent in the 10-year yield had prompted a rush of some automated flows and others being 'stopped-in' to buy duration adding to the bid side flow. And at that moment the Fed was also conducting a scheduled coupon pass (its reinvestment operation across the Treasury curve). This created very difficult conditions for traders. One contact also indicated there was some corporate deal pricing going on that might have contributed.
- A couple of contacts specifically noted that their electronic systems had struggled today in populating platforms (explicitly mentioning Tradeweb, but presumable others too) with prices updating quick enough in off the run treasuries, contributing to some unwanted sales at overly cheap prices and some withdrawal in liquidity. To be clear, no dysfunction or misbehaviour by algorithmic trading systems causing issues, just that the illiquidity partly reflected that the speed of the move found some of the automated systems (or mixture of human and automated systems and processes) wanting (so that traders may have bought at lower prices (higher yields) than they might have wished to as the fast rally occurred or hedging may not have been as effective/efficient as intended.

Please let me know if you have any specific questions or need anything further

Best regards,

New York Representative Office
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From:
Sent: Saturday, 7 March 2020 12:46 PM
To: ID Chatter
Subject: NY Chatter: 'Unlike anything anyone has ever seen?' - a striking coronavirus-driven rally in US Treasuries, partly reflecting illiquidity, and relative calm in repo and funding markets [SEC=UNCLASSIFIED]

The Treasury market has experienced a stunning rally (yields declining) over the past week as fears about coronavirus escalated. The 6-month Treasury bill yield fell 114 basis points to 0.38 per cent (!). Bond yields fell by around 40 basis points (see table below). And conditions have seen volatility pick up markedly. Today (Friday 6 March) the intraday trading range in 10-year yields was the largest since the flash rally of 15 October 2014!

US Treasury Market - Friday 28 February to Friday 6 March 2020		
	Change (Basis points)	Close 6 March (Per cent)
2-year	-41	0.51
5-year	-33	0.61
10-year	-39	0.76
30-year	-39	1.29

The rally has reflected the response to a dramatic escalation in concern about the spread and economic impact of coronavirus, particularly outside of China, but has also been characterised by a number of related or exacerbating factors:

Fed repricing

- A repricing of both Fed policy rates and expectations for Fed policy rates. The Fed held an emergency (unscheduled) meeting on Tuesday 3 March and cut rates 50 basis points rather than waiting for the scheduled March FOMC meeting finishing on 18 March. Markets adjusted abruptly on that (partial) surprise and have rapidly priced further cuts with no serious attempt from Fed speakers to temper such expectations. Part of the increase in Fed expectations has been linked to a commonly cited observation that past intermeeting cuts have nearly always been followed by a cut at the next scheduled meeting (usually by 50 basis points).

Once Fed does 50bps intra-meeting they normally go 50bps again at next regular meeting

A history of recent Fed intermeeting rate cuts

Date	Action	Action at next FOMC	Event
22-Jan-08	Cut 75bps	Cut 50bps	Financial crisis
17-Sep-01	Cut 50bps	Cut 50bps	September 11th
18-Apr-01	Cut 50bps	Cut 50bps	Slowing economy
3-Jan-01	Cut 50bps	Cut 50bps	Dot com bubble
15-Oct-98	Cut 25bps	Cut 25bps	LTCM crisis

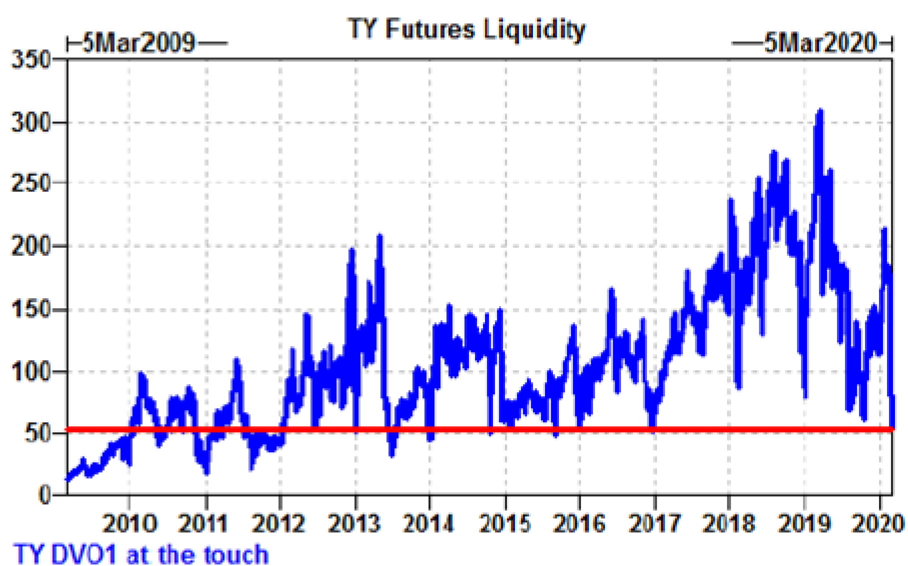
Illiquidity

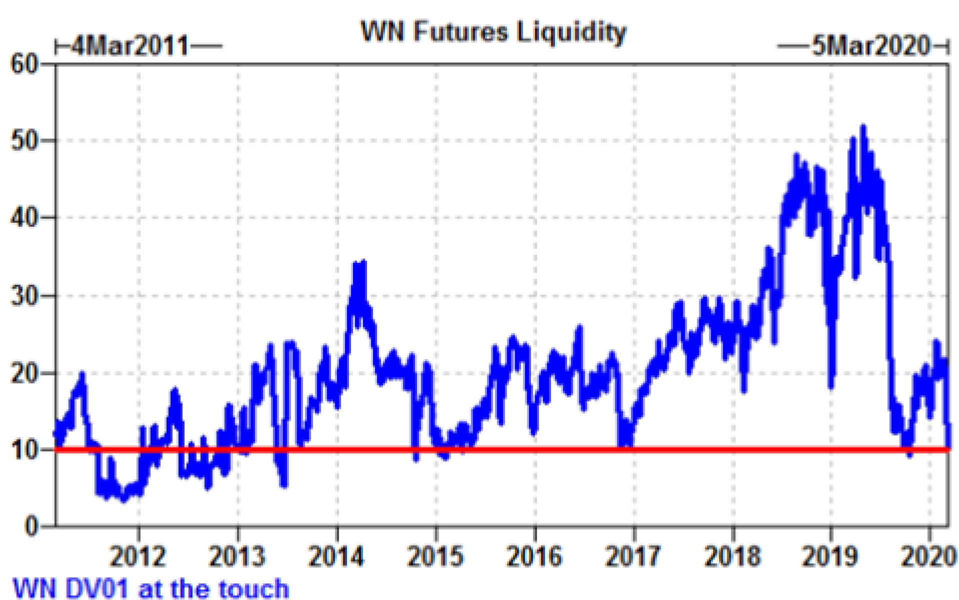
- Since Monday 2 March, market functioning has become increasingly impaired in US Treasuries (in the market I have long considered the most liquid in the world!). Illiquidity has clearly added to the size of the moves, and most of the flow has been buying on-the-run Treasuries and Treasury bills across the bill curve.
- The sharpness of the moves clearly created some dynamics of their own, causing dealers to retreat from confidently providing liquidity and driving some buyers to be 'stopped in', that is forced to buy to stem losses from short positions or due to the need to secure investments with some yield for fear of yields moving even lower.
- The initial buying (picking up pace from mid last week) also emptied dealers of inventory, causing markets to be offer-less at points (we saw 30 basis point bid offer spreads in Treasury bills at points during the week and experienced some counterparties with no interest in taking our (buying) trades. We also experienced our rates sales people having to queue to speak with their (obviously stressed) traders. A commonly repeated, only moderately hyperbolic, observation this week was that the Treasury market became 'trade by appointment'.
- Markets also appear to be projecting very weak growth and inflation in the future. (US population growth is around 0.7 per cent and the 30-year bond is only 60 basis points ahead of current population growth.) (Author's Comment: *it is not clear to me how the coronavirus seriously increases the chances of a secular stagnation environment except in the most awful, tail outcomes so I seriously hope the move in 5, 10 and 30-year Treasuries is incredibly overdone!*)

How broken is the Treasury bond market?

- Early in the week contacts generally had mixed views thinking the market a little broken, but referencing both what was regarded by many as an irrationally-oversized move and some striking-but-not-unprecedented strains in liquidity.
- By the end of the week a number of contacts rang to update their characterisation saying the market was now broken. As broken as they had ever seen it. And those who volunteered their comments were backed up by contacts we asked directly. Liquidity was severely strained in ways that once contact who has worked in this market since 1978 had not experienced ('unlike anything anyone has ever seen').
- Some examples to illustrate these conditions are below. The first graphs show low volumes in the top bid and offer sizes in the futures contracts – a measure called DV01 at the touch which gets at the quantity of interest rate risk that can be traded in futures instantaneously without moving the market against yourself. (The specific calculation is the daily average of (the first bid in dollars of interest rate risk per basis point + the first offer in dollars of interest rate risk per basis point)/2
(TY is the 10-year futures contract and WN is the 30 year bond futures contract.)

These graphs tell you there was very low liquidity in US Treasury futures and this is backed up by our own observations of the so called ‘stack’ of bids and offers and our experience trading futures this week.

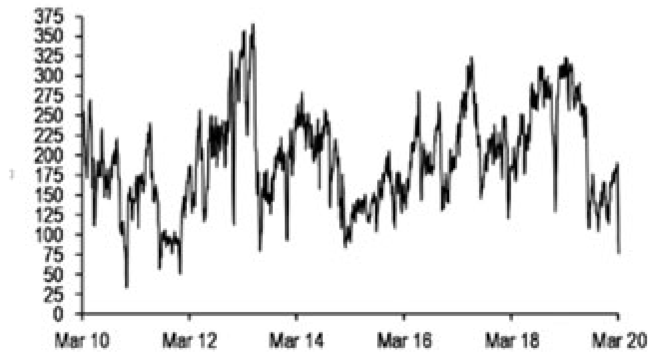




- JP Morgan provide a different characterisation showing a striking drop in liquidity foir this time of year (not year end).

Exhibit 4: Market depth has dropped to levels typically observed around year end…

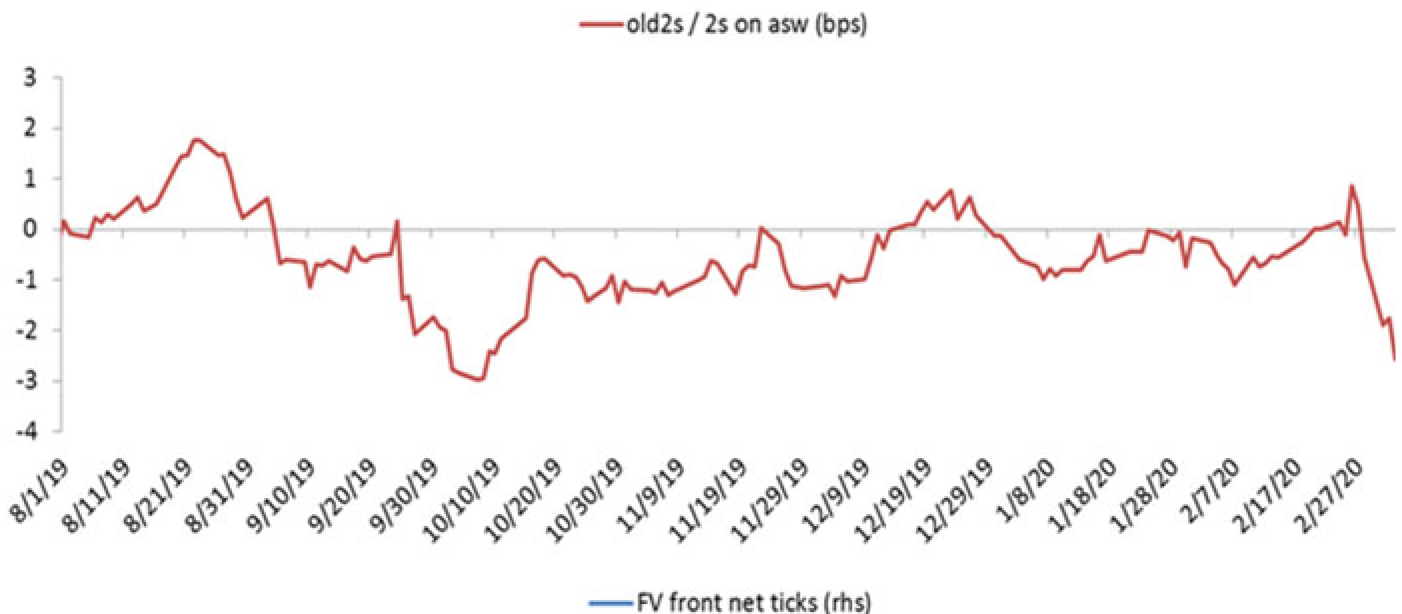
One-week average of 10-year Treasury market depth*; $mn



* Market depth is the sum of the three bids and offers by queue position, averaged between 8:30 and 10:30am daily

Source: J.P. Morgan, BrokerTec

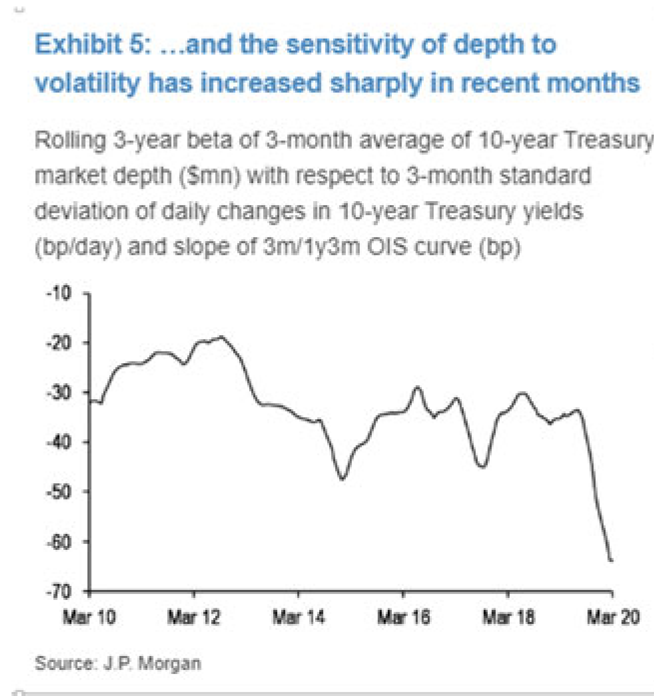
- Another measure of the in liquidity may be the widening of spreads between off-the-run (issued one month ago) and on-the-run (issued within the last month) Treasury bonds. The graph below shows the difference in (one measure of) the spread to swap of the on the run 2 year Treasury note and the most recent (the first) off-the-run 2-year Treasury note. The history picks up shifts in the steepness of the yield curve, but the sharp move lower (the on the run becoming expensive compared to the first off the run) has if anything occurred as the rest of the 3m/5y curve has shifted steeper (so working against the effect observed in the graph). This suggests market participants favouring owning the most liquid Treasury bonds versus less liquid lines. And dealers have not been willing to accept taking down the (seemingly cheap) off the run lines (this accords with what contacts have told us and the graphs above illustrate that the futures market was a hard place to set off the interest rate risk of being lumped with off the run Treasuries this week given the fall in liquidity). Somewhat countering this point, one contact circulated som more sophisticated analysis (based on the spread of off the run yields to the modelled Treasury curve) that indicated only limited evidence of this deterioration in liquidity in off the run Treasuries.



Why?

I am looking for more explanations for what we have seen in the past week, and would welcome any suggestions, When we ask contacts what has driven the deterioration in liquidity they don't agree, but they offer a couple of suggestions:

- The size of the moves spooked traders, driving a self-reinforcing cycle of illiquidity due to dealers retreating from providing market making services to prompt a further deterioration in liquidity. (This shows up in JP Morgan's depiction of the relationship between market depth and volatility – see below)



- The (regulatory) pressure (since the GFC) to shrink balance sheets and the related small size of repo funding desks compared to past events means traders simply will not express their view that the move might be overdone and hold short positions in anticipation of a correction.

- The steady continuation of Fed bill and coupon purchases leads to a further reluctance by dealers to be short.

And while none of our contacts suggested it as a factor, all our contacts have simultaneously been dealing with these striking market moves and pressures while relocating staff, re-familiarising themselves with business continuity plans, and attending newly scheduled meetings (sound familiar?). All the contacts I spoke with today had already moved to split locations this week or were planning to do so next week, and I suspect this may also have played a role in the difficulties in obtaining traders' time and attention.

But not so much in money markets

- This week really has not looked like the liquidity crises of the past in repo markets. Front end, Treasury funding markets have not shown anything like the same degree of stresses as Treasury bills or the Treasury bond market so far. The moves away from repo markets have looked more like a different kind of flight to quality, fear-driven downgrading of expected prospects for the economy (and upward rerating of expectations for Fed easing).
- Repo has only really shown some slight heaviness but nothing in the realm of the seriously unusual. Libor/OIS (a measure of the cost of funding for banks) and FRA/OIS (a measure of the cost to banks to

terming out their funding) have widened and shown some stresses, but basically rates have all moved lower while not keeping pace with interest rate expectations (OIS) or (the incredible rally in) Treasury bills.

- Contacts point to the continuing provision of (cheap) Fed liquidity as a large explanation. We might also suggest there simply isn't the same market for repo against weaker collateral or termed out repo funding to the extent that existed before the GFC.

Key questions

One key issue to watch from here is the extent to which this transitions from a flight to (on the run) Treasuries to a credit market stress event. There are signs that high yield (the riskiest) corporate credit instruments are being priced dramatically cheaper (incorporating greater expectations for credit losses). The high yield CDX index which is linked to instruments that pay out when firms fail to meet obligations has increased consistent with spreads on high yield corporate bonds moving by hundreds of basis points wider. The moves have been more muted for investment grade credits but consistent with some decent widening. But it does seem untenable to think that in a world where the correct 10-year yield is 76 basis points and the correct 30-year yield is about 1.3 per cent, that companies generate (any) cash flows (whatsoever) to repay their lenders.

We will also to watch for moves that there might be a transition to other policies rather than central banks as such a central and first response to the coronavirus threat. To the extent direct government spending and public health responses move to the fore, there could be room for some repricing away from cuts all the way to the Fed's effective lower bound and further accommodation after that.

Finally will conditions improve for dealers in their market making roles? It really does seem surprising that market illiquidity has been such a factor.

As always we'd welcome any thoughts or comments on any of this and we wish you all the very best from NY in this challenging time.

NYRO

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From:
Sent: Friday, 13 March 2020 4:33 AM
To: DEBELLE, Guy; KENT, Christopher; JONES, Bradley
Cc: NY Dealing; JACOBS, David; BOGE, Matthew

Subject: Fed announces very large 3mo repo operations and shifts from bill purchases to purchases across the curve [SEC=UNCLASSIFIED]

Hi all

Just a quick email, more to follow. The Fed just announced a significant intervention via its operational activities to address 'temporary disruptions in Treasury financing markets'. It will widen its reserve management purchases over the next month to purchases securities across the curve and offer very large ($500b) 1- and 3- month repo operations each week over the same time period. The 'across the curve purchases will continue into Q2.

The announcement saw a bunch of sharp market moves (and came 5 minutes before a 30-year auction) with government yields lower, and a 6 per cent intraday gain in US equities (to still mark a loss over the session of 2.9 per cent). Some of the moves have since been paired. And in indicators of tension like the spread between off the run and on the run Treasury yields and FRA/OIS (capturing expectations of the spread of LIBOR to OIS) the intraday moves are noticeable (and go in the 'right directions' but after the moves the markets remain around stressed levels at least right now (4:30am Sydney time).

In more detail the NY Fed will:

- Shift its reserve management bill purchases over the next month (at the same $60b a month pace) from just Treasury bills to purchases across the curve (NY: *many will see this as starting QE*). The purchases will seek to match the maturity structure of Treasuries outstanding and purchases will cover coupons and bills, TIPS and FRNs.
- Commence a series of US$500b 3-month repo operations and US$500b 1-month operations (with the first 3mo today for settle tomorrow, 1 and 3mo offered tomorrow for same day settlement, and thereafter weekly $500b 1 and 3 month repo operations. (These will be offered alongside $175m overnight operations daily and at least two at-least-$45b 14 day operations twice per week.)

Please let us know if you need anything further,

All the best

NYRO

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From:
Sent: Friday, 13 March 2020 9:58 AM
To: Notes policy groups
Subject: IFM Global Markets Briefing

Global Markets Briefing

Confidential

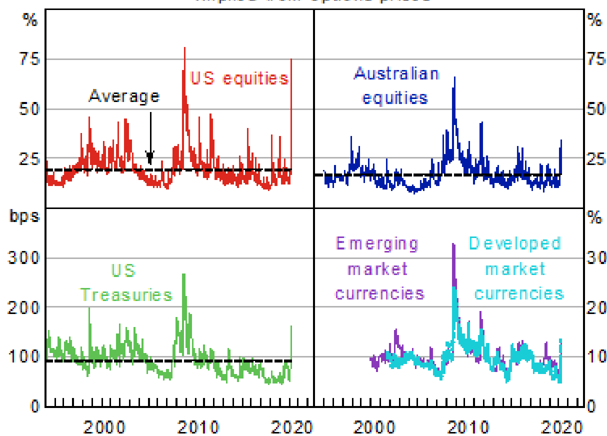
Contributors: International Department and New York and London Representative Offices

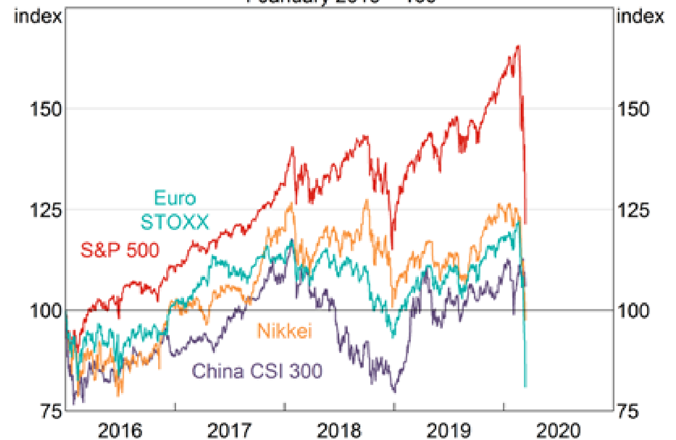
12 March 2020

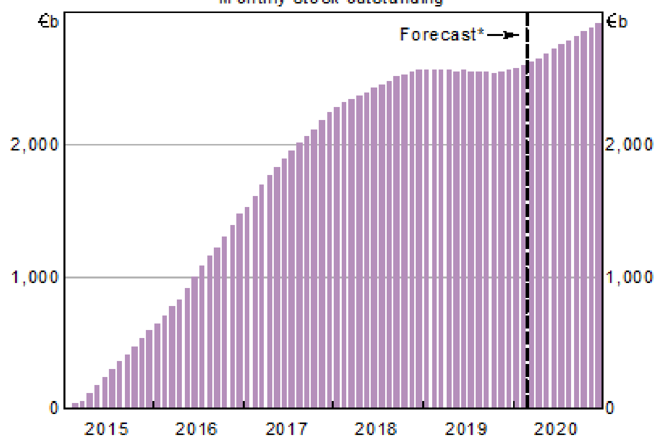
Risk sentiment deteriorated and market volatility increased significantly overnight. Markets were generally disappointed by the ECB's decision to leave its policy rate unchanged, the lack of a material US fiscal policy response and the announcement of a travel ban between the US and Europe. An expansion to the Fed's liquidity operations, aimed at reducing recent liquidity strains in the US Treasury market, provided temporary support to the prices of risky assets.

Global equity prices fell with many equity indices triggering circuit-breakers to temporarily halt trading. European equity prices fell by 12 per cent, with the Euro Stoxx index recording its largest ever intraday decline, following the travel ban announcement and the ECB's decision. US Treasury yields traded in a large intraday range but generally finished little changed. German bund yields were little changed following the ECB's decision, but other European yields rose significantly following a comment from ECB President Lagarde that 'the ECB is not here to close [Euro area periphery] spreads'.

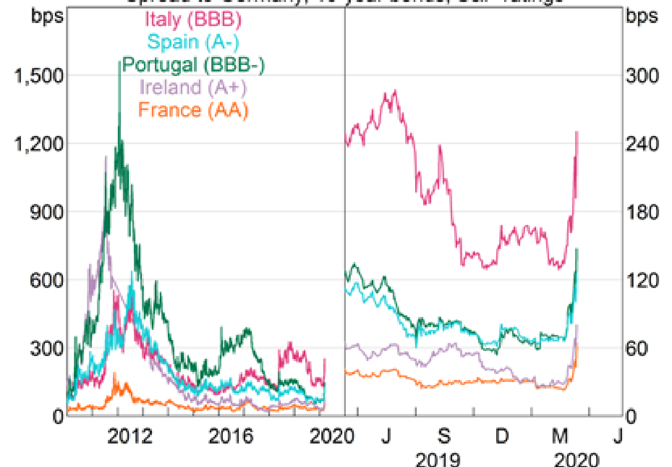
The Australian dollar depreciated significantly against the US dollar amid the deterioration in risk sentiment. The Australian government's fiscal response was in line with expectations and had little market impact.







* Assumes new asset purchases of €33bn per month until end 2020.
Sources: ECB; RBA



CENTRAL BANKS

Euro area monetary policy (–0.5%; unchanged; –10bps expected):

The ECB's Governing Council left its main policy rate and forward guidance unchanged but approved a package of policy measures.

- **€120 billion of new asset purchases by the end of 2020.** This translates to approximately €13bn extra per month of temporary measures, on top of the current €20bn of ongoing monthly purchases. The new purchases will 'ensure a strong contribution from the private sector purchase programmes', indicating the new purchases are likely to be weighted towards corporate debt securities.
- **Lower interest rates and larger allocations for planned targeted longer-term refinancing operations (TLTRO III).** The interest rate will be reduced by 25bps and the borrowing allowance raised from 30% to 50% of their stock of eligible loans. The more favourable terms will be applied from June 2020 to June 2021 to all outstanding TLTRO III operations. Over this period the interest rate on these operations will be at most 25 basis points below the main refinancing rate of 0% and as low as 25bps below the deposit rate of –0.5% for participants that maintain sufficient credit provision. The ECB also relaxed other conditions on the operations to allow a greater proportion of loans to attract the lowest interest rate.
- **Additional longer-term refinancing operations (LTROs).** The LTROs will provide liquidity at the average deposit rate (–0.5%) to bridge the period until the next TLTRO III operation in June 2020.

The ECB Supervisory Board implemented measures to provide temporary capital and operational relief to banks. Banks will be allowed to fully use capital and liquidity buffers and benefit from relief in the composition of capital for Pillar 2 requirements. The ECB notes that these measures will be enhanced should national macroprudential authorities relax countercyclical capital buffers. The ECB is also discussing measures with individual banks to relax operational measures such as on-site inspections and internal model investigations.

The ECB also released its growth projections, although these projections were finalised using data available as of 28 February and assumptions set on 18 February. The projections nevertheless showed a downward revision of 0.3 percentage points in real GDP growth to 0.8% in 2020.

ECB President Lagarde: *governments are called upon to take timely action; ambitious, coordinated fiscal response needed; ECB measures will help smooth provision of credit; incoming data signal considerably worse outlook; growth expected to regain traction in medium term; risks to growth outlook clearly on downside; virus implication for inflation highly uncertain; measures such as credit guarantees are needed; ECB will use 'all the flexibilities' of QE program; ECB not at reversal rate; ECB not here to close bond spreads; Italy will fully benefit from all ECB tools; next ECB council meeting will be online; we have tools to fight fragmentation; can deviate from capital key if necessary.*

New York Federal Reserve announces plan to adjust Treasury securities purchases and repo operations

The NY Fed announced that it will adjust the maturity composition of its monthly $60bn Treasury securities purchases to more closely match the maturity composition of outstanding Treasury securities, in order to address temporary disruptions in Treasury financing markets. Purchases will be distributed across eleven sectors, including nominal coupons, bills, Treasury Inflation-Protected Securities, and Floating Rate Notes. The purchases had previously been limited to Treasury bills. The NY Fed will also offer $500bn in one-month and three-month repo operations on a weekly basis for the remainder of the monthly schedule, in addition to the $175bn and $45bn already offered in the overnight and two-week term repo operations respectively. Term repo operations in larger sizes have been added to enhance functioning of secured US dollar funding markets.

Bank of Canada expands bond buyback program and term repo operations

Bond buybacks will extend across all maturities and will be conducted at least weekly, in order to support market liquidity. The BoC has introduced 6 and 12-month repo operations, in addition to existing 1 and 3-month repo operations. The size of the expansion will be adjusted depending on market conditions.

OTHER NEWS

US bans non-citizen travel from some countries in Europe

Non-US citizens who have been in the Schengen Area in the past two weeks will be barred from entering the US for 30 days from midnight on Friday. The measures are an attempt to stem the spread of COVID-19.

Spain announces €18bn fiscal stimulus, more expected

The package includes financial relief measures for regional governments, an increase in health spending, a moratorium on tax payments for small- and medium-sized companies over the next six months, and policies to support the tourism industry. Prime Minister Pedro Sanchez said further measures will be approved in the coming weeks.

GLOBAL FINANCIAL MARKET INDICATORS

Price changes for 12-Mar-20

Prices as at local close or 7:30 am Sydney time

Government debt markets – 10 year bonds	Rate (%)	Δbps	YTD Δbps
US	0.81	-6	-111
Germany	-0.74	0	-56
Japan	-0.06	1	-5
UK	0.27	-3	-56
China	2.64	3	-50
Australia	0.77	9	-60
Spreads to Germany	**bps**	**Δbps**	**YTD Δbps**
France	64	21	34
Italy	250	58	90
Spain	126	25	60

Policy rates	Rate (%)	Δbps	YTD Δbps
US	1-1.25	0	-50
Euro area	-0.50	0	0
Japan	-0.10	10y JGB target: ~0%	
UK	0.25	0	-50
Australia	0.50	0	-25

Money markets	Rate (%)	Δbps	YTD Δbps
US SOFR*	1.11	0	-44
US 3m LIBOR	0.74	-3	-117
US 3m Treasury	0.30	-10	-124
Euro 3m EURIBOR	-0.49	-2	-11
China 7-day repo	2.16	-8	-65

Equity markets	Level	%Δ	YTD %Δ
S&P 500	2481	-9.5	-23.2
Euro Stoxx	280	-12.4	-30.8
Topix (Japan)	1328	-4.1	-22.9
CSI 300 (China)	3951	-1.9	-3.6
ASX 200	5305	-7.4	-20.6
FTSE (UK)	5237	-10.9	-30.6
VIX (change in ppt)	75.47	21.6	61.7

Currencies	Level	%Δ	YTD %Δ
EUR/USD	1.1177	-0.9	-0.3
USD/JPY	104.76	0.2	-3.5
USD/CAD	1.3912	1.0	7.1
GBP/USD	1.2583	-1.8	-5.1
USD/CNY	7.0297	1.0	1.0
AUD/USD	0.6265	-3.4	-10.7
AUD/CNY	4.4041	-2.4	-9.9
AUD/NZD	1.0242	-0.9	-1.8
AUD TWI**	54.70	-2.6	-9.2

Commodities	Level	%Δ	YTD %Δ
Oil WTI (US$)***	31.04	-5.2	-49.2
Oil Brent (US$)***	32.80	-8.0	-50.3
Iron ore (FOB, US$)	84.35	1.3	-0.4
Gold (US$)	1569	-4.1	3.4

** Data available with one-day lag ** Due to timing differences the change in the TWI may not align with changes in bilateral exchange rates *** Front contract*

From:
Sent: Saturday, 28 March 2020 9:42 AM
To: ID Chatter
Subject: NY Chatter: Treasury Market functioning and liquidity - update w/e 27 March [SEC=UNCLASSIFIED]

It has been a striking couple of weeks for all of us I am sure. Very best wishes from NYRO and thanks to all who have been asking how we have been doing.

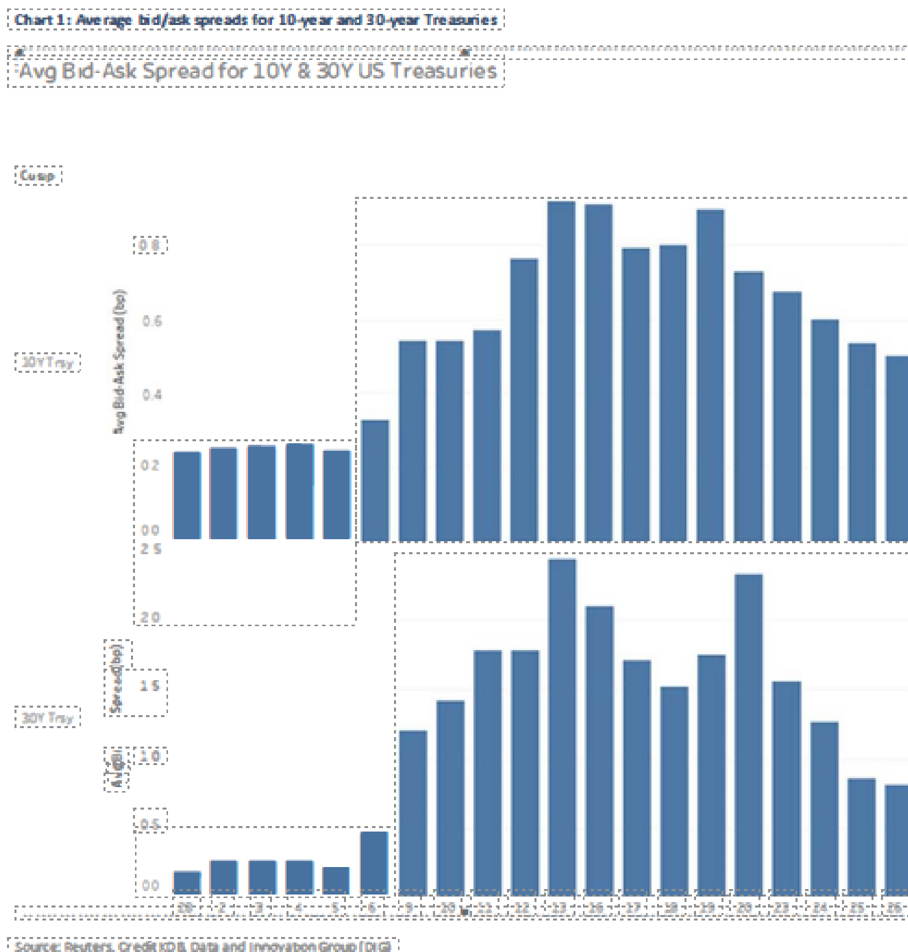
I thought I would just offer a couple of quick thoughts on Treasury market liquidity and functioning with a few (borrowed) graphs from counterparties.

- An informal (and small) survey of our contacts generally describes Treasury market liquidity towards the end of this week (around 27 March) as somewhere between 'really a lot better but not quite normal' and 'significantly better but still challenging'
(I am here referring to Treasury notes/bonds – i.e. 2-year to 30 year US government bonds).

  I am sure a lot will be written about this stunning time in the future, but the Treasury market really has seen a dramatic reduction in effective functioning, and our own participation / screen watching would indicate we can now do what we want, but there are still greater transaction costs than normal.

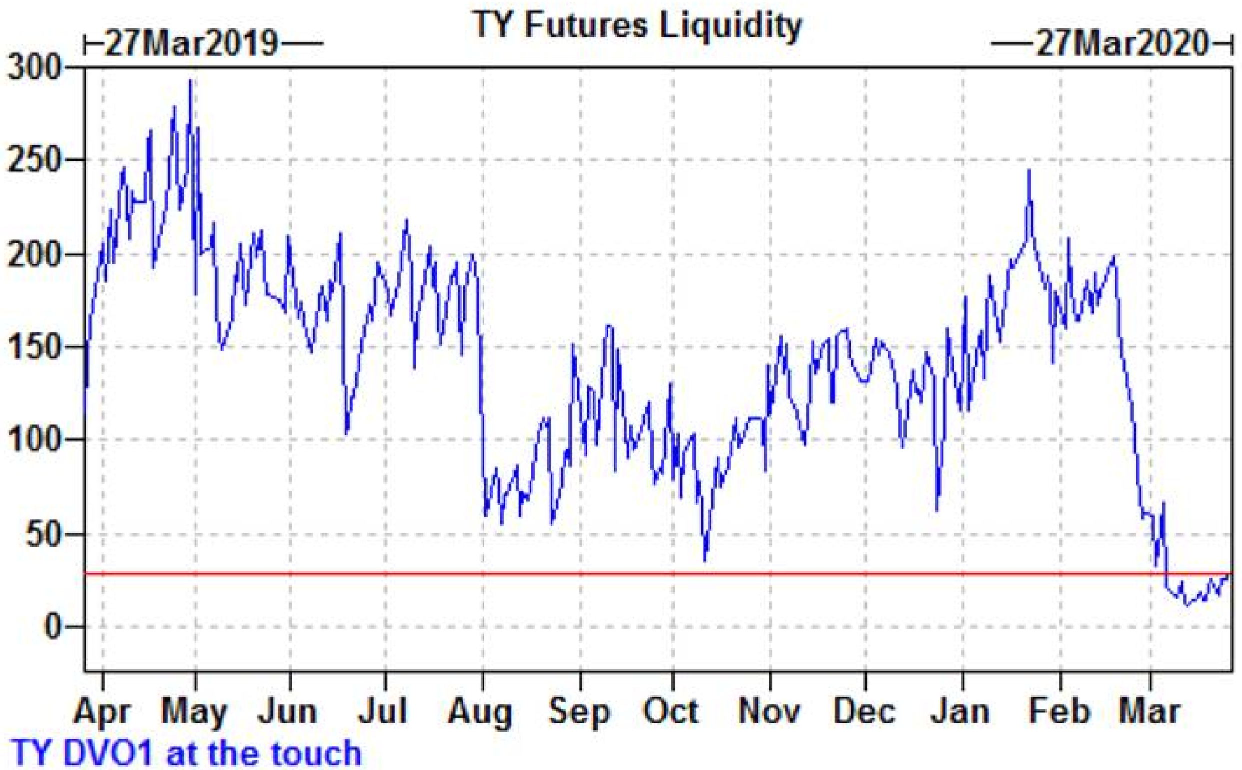
- 2 further observations may be of interest.

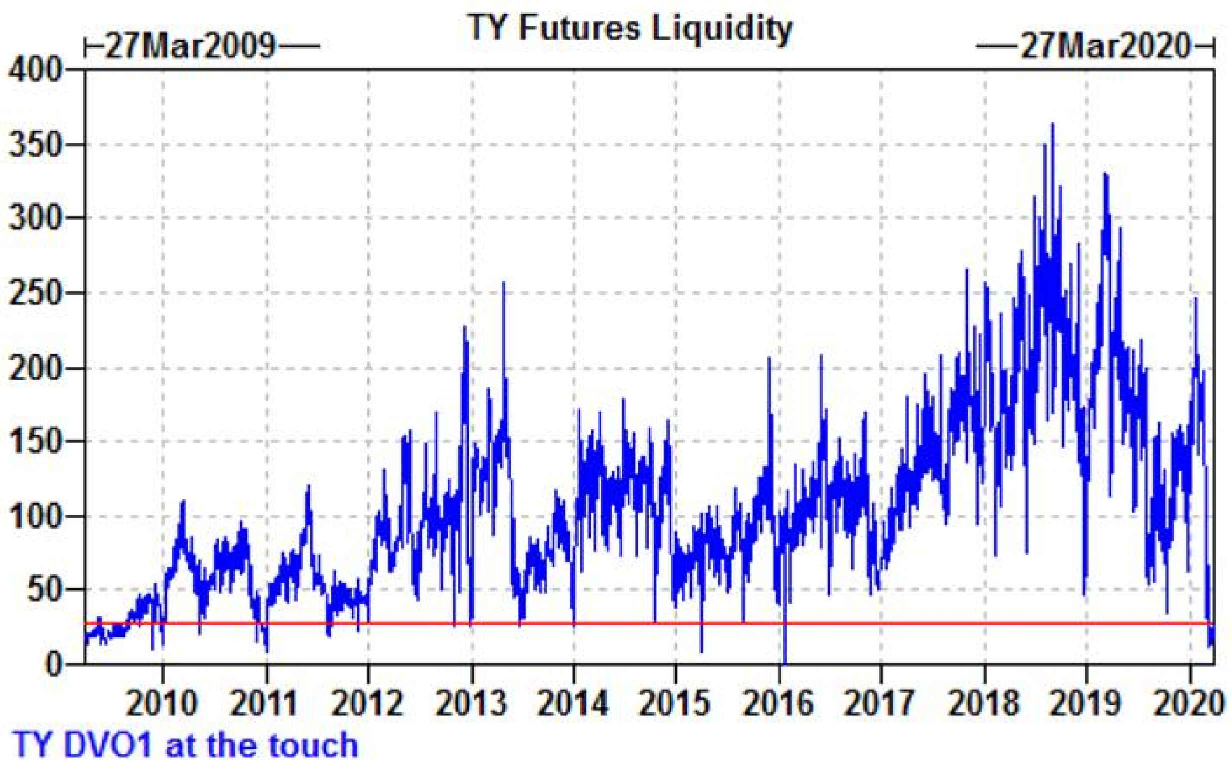
  1. **Bid-offers got very wide, and have now come back in a fair bit, but remain wide compared to normal conditions –** the below comes from a research piece by Bank of America, note the 28 February bar is the average for the second half of February, to give a presentation of normal conditions.



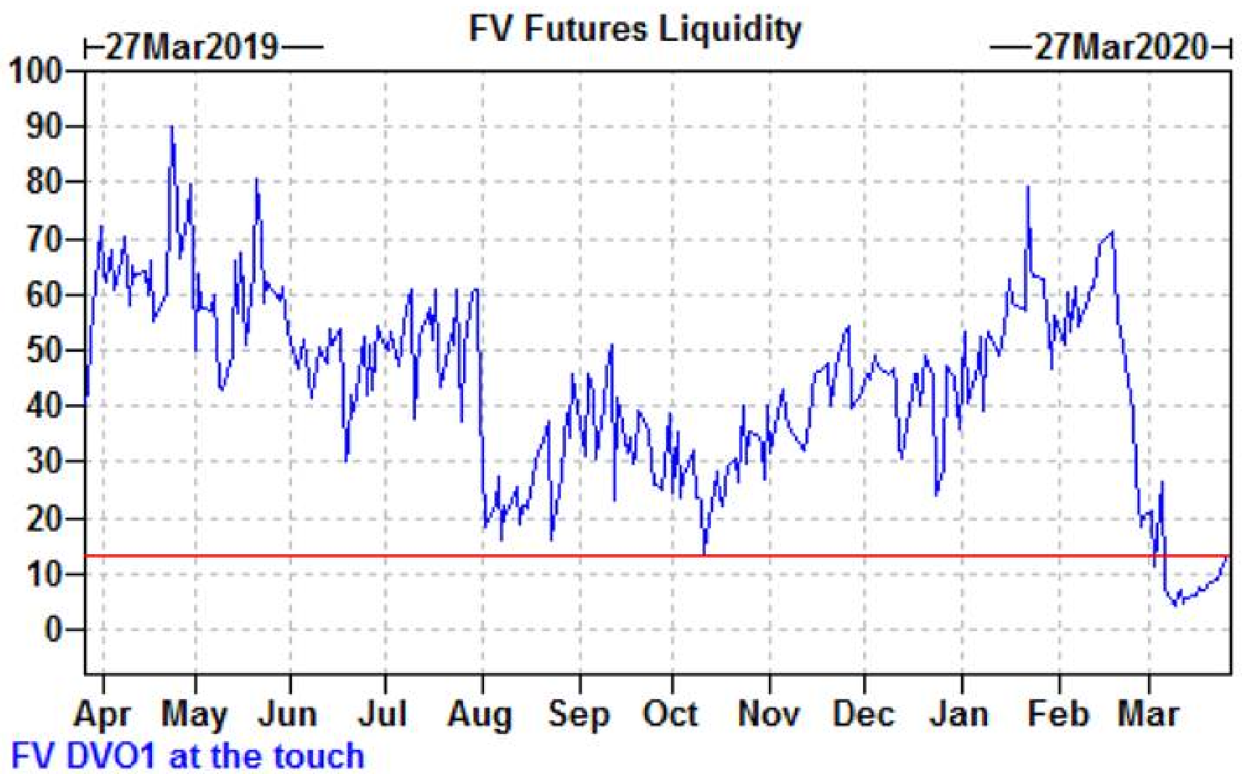
2. Futures market liquidity remains very low – with the Goldman Sachs provided 'dv01 at the touch' measure (dollars of risk per basis point value of the first bid and the first offer divided by 2) showing the dramatic fall in market depth – below I have pasted their graphs for 5- and 10-year futures contracts.

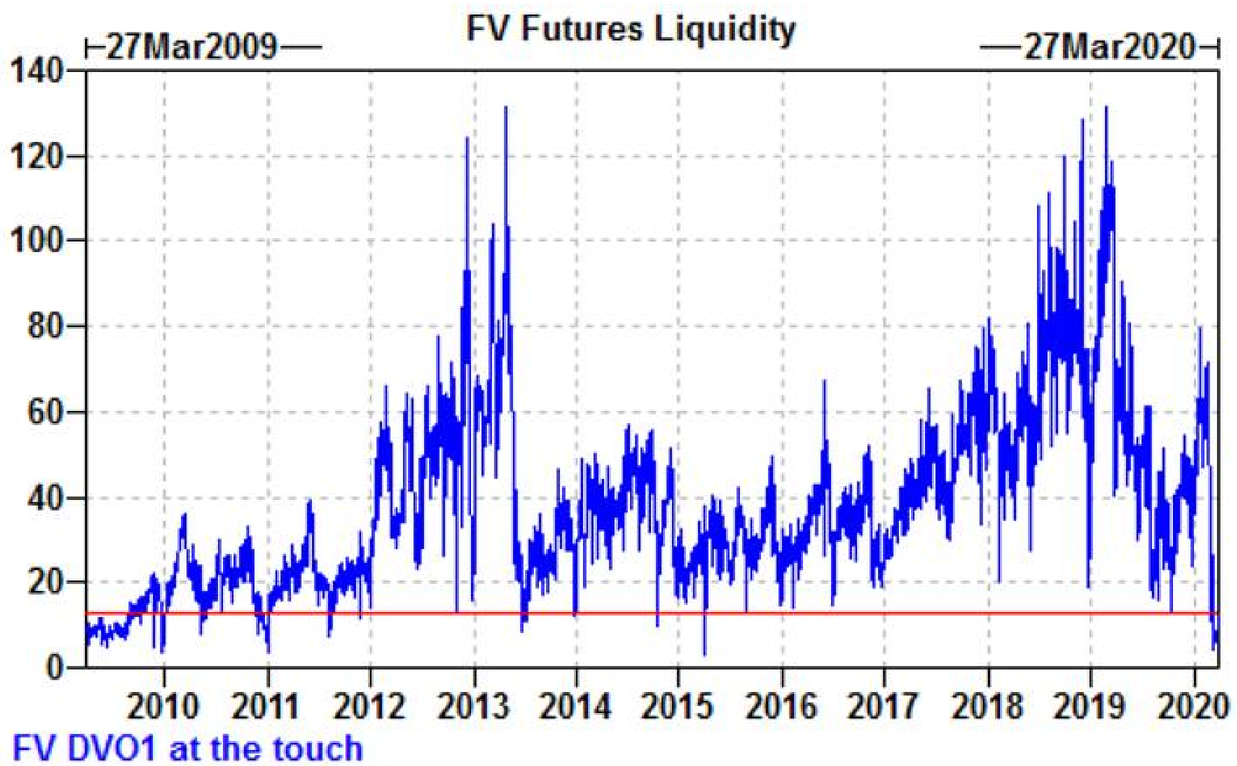
TY=10 Year Futures





FV=5 Year Futures





NYRO