



Understanding 1mo SOFR Futures – RJO FIG

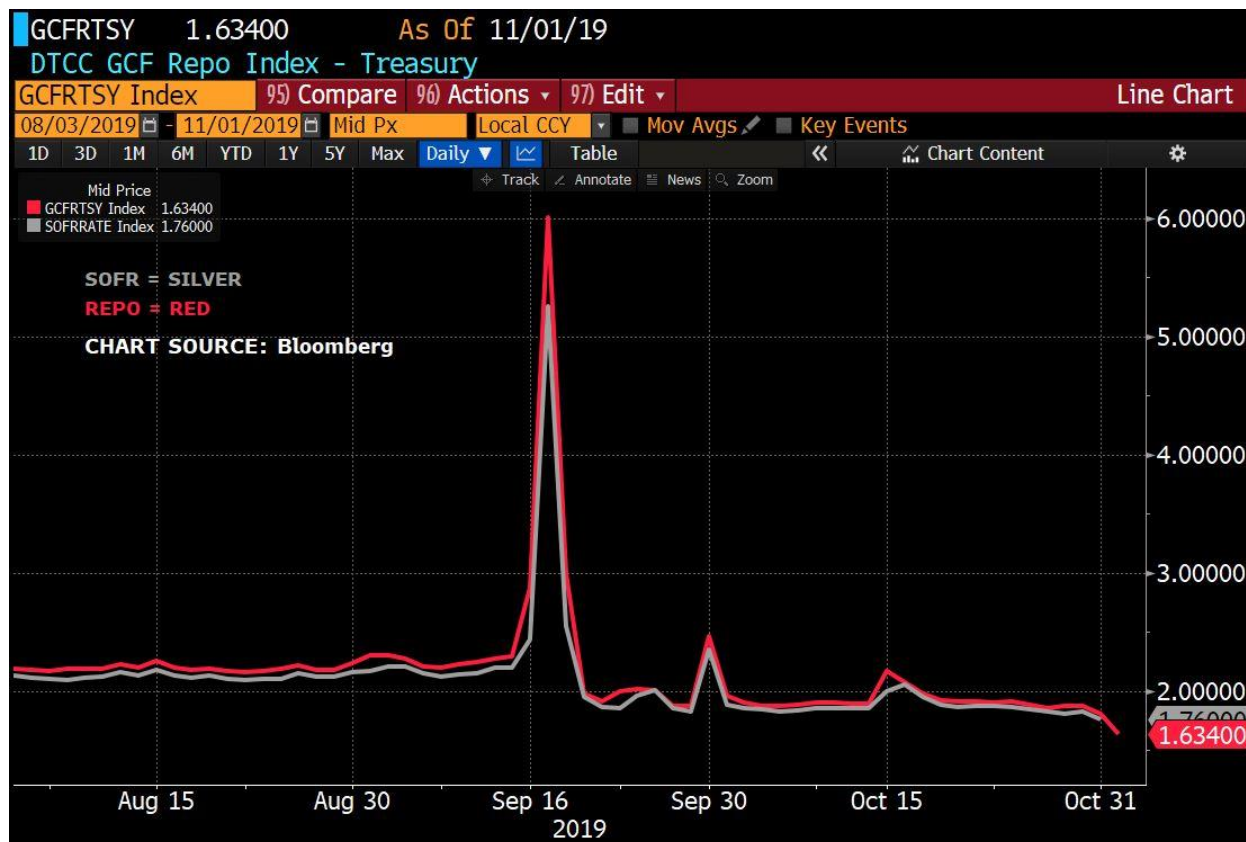
November 2019

Plenty of talk continues about repo and funding pressure subsequent to the September surge. Many of the best minds and most-veteran traders are warning that the Fed’s multiple patches are not enough. But how does an institution with risk hedge this exposure? Or, how does a smaller fund (without access to all forms of derivatives) protect or wager on year-end funding pressure?

The answer is, “Use SOFR futures.” Since virtually all institutions can access the futures market, it’s the one place a fair, transparent, anonymous strategy may be executed. BUT, SOFR futures are new. The futures valuation seems odd. In reality, the math behind a 1-month SOFR future is easy enough for any trader to calculate. Also, for traders who have used 1-month Fed Funds Futures, the construction, trading and valuation are the same as 1mo SOFR futures.

Understanding 1-month SOFR Futures

Two channels of repo trading, DTCC and Triparty, determine the daily SOFR rate. When comparing DTCC GCF Repo with SOFR, we find:



1mo SOFR futures settlements, active bid/ask and size, can be easily found on Bloomberg™ (**SRDA <comdty> CT<go>** for ICE SOFR and **SERA<comdty>CT<go>** for CME Group). Settlements from Friday, 11/1/2019 are visible now (markets closed currently—Graphic Source: Bloomberg):



Other than notional size, the two 1mo SOFR futures alternatives are structured in like manner.

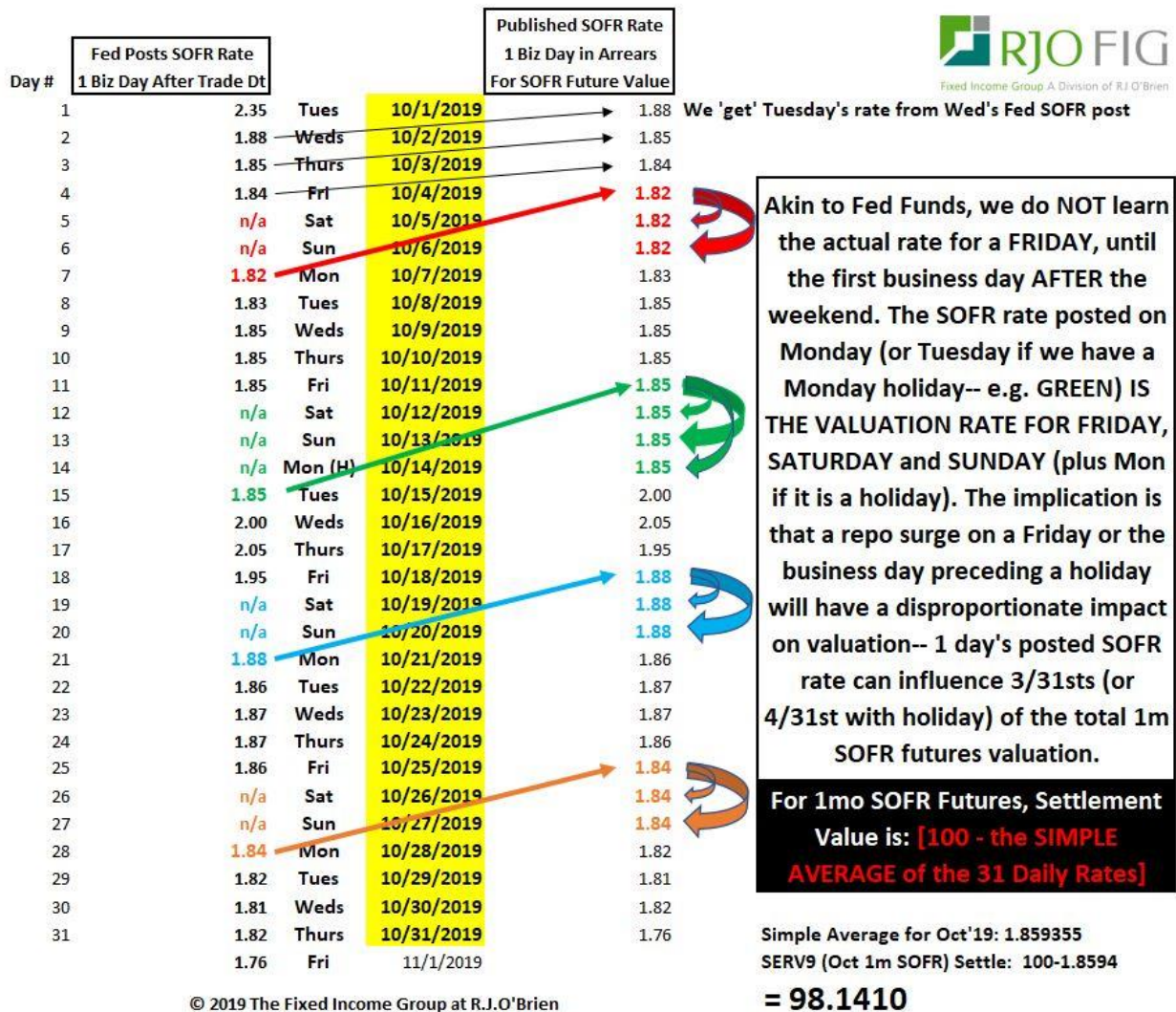
The CME Group futures will be the focus from this point forward—due to the fact that Fed Funds futures, a necessary component for many funding-related trades, are also a CME Group future.

There are two (2) distinct components to the lifecycle of a 1-month SOFR future. First, there is the period where the future price is the market’s trade-influenced estimate of, “At what price will this SOFR future settle?” The price has nothing to do with a known value. It’s a future—the market’s best guess at final value. Each month from ‘today’ to (at least) June 2020 have streaming (immediately-actionable) 1mo SOFR bid/ask spreads.

While the first component of a 1mo SOFR future is the “trading-at-the-market’s-best guess level”, the second piece is using hard data to determine the future’s settlement value. Not shockingly, 1mo SOFR futures NEED one month’s worth of daily SOFR rates to build a settlement value. In the event of a

weekend or holiday, the last posted SOFR rate (e.g. 'Friday') is the posted rate for non-trading days (e.g. Saturday and Sunday). Looking at the recently-settled October 2019 future's valuation:

Daily Fed-Posted SOFR Rates Used to Determine Final 1mo SOFR Future's Settlement

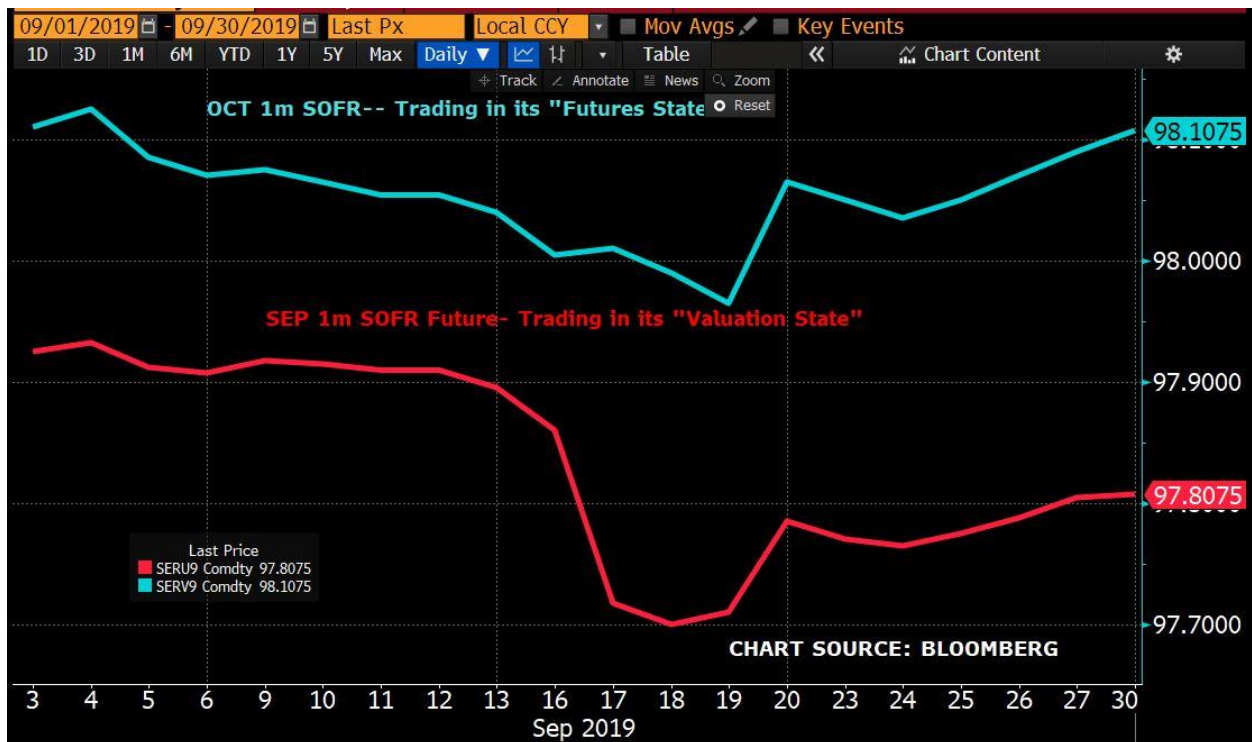


For illustration, let's say a repo surge occurred on Friday, 10/11/2019, that caused SOFR to spike to 6.00% (instead of the 1.85% actually recorded for the four days). The impact would result in an average rate of 2.39484 (vs actual of 1.85936). The resulting hypothetical October 1mo SOFR Future value would be 97.6052. Economically, \$4,167 per 1 point of 1mo SOFR Future's price: $\$4,167 \times (98.141 - 97.6052) = +/- \$2,232.85$ – a massive difference from the actual settle AND a magnified example of what happened back in September.

Briefly, $100 - \text{SOFR_fut_px} = \text{Futures Implied SOFR rate}$. So, a move from 98.00 to 98.01 (or 97.99) is the equivalent of a 1 basis point change in 1-mo SOFR yield. Both 1mo SOFR and 1mo Fed Funds rate sensitivity (aka "dv'01") are calculated on a non-convex, nominal basis point value from a \$5 million notional contract size. So, $\$5\text{mm} \times 0.0001 \times (1/12 \text{ of a year}) = \41.67 per basis point. 1 point = 100 basis points, thus the seemingly odd \$4,167 per point.

Understanding the difference between a SOFR future, trading in its “Futures Contract State”, versus its “Futures Valuation State” is HUGE. A brief blowout in repo can massively impact the price in the Valuation State. The Fed-published daily SOFR rates are directly and irreversibly part of the calculation of settlement. BUT, that same spike can be nothing more than a good or bad daily move for a SOFR futures contract trading in its futures contract state (e.g. the ugly 1-day SOFR print may move the future’s price, but it will NOT impact the settlement value of any SOFR future other than the contract of the current month).

Let’s look at what happened in September. Assume for the month of September, a trader has a SHORT position in each of the Sep’19 1mo SOFR future (SERU9), and, a short position in Oct’19 1mo SOFR future (SERV9). Sep is in the ‘valuation’ window while Oct is in the ‘future’ window:



The Oct 1mo SOFR future was a scratch for September; zero P&L. The Sep 1mo SOFR future was a 12bp winner as a short. Identical positions, over identical timelines, only one month apart on the forward yield curve. The Sep SOFR trade retained the impact of the repo/SOFR surge, while Oct shrugged it off as the Fed intervened. To ‘win’ in the “futures state”, the trader would have had to make a market timing call. The short in the “valuation state” retained the ‘win’ (albeit timing would have been nice on the cover).

The point is, if a trader is entering a hedge or speculative position in SOFR futures, (s)he has to understand the difference of contract behavior between a SOFR future IN valuation month versus a SOFR future NOT in valuation month. A quarter-end or year-end on a Friday will have greater impact (three days of the settlement’s average price) versus the one-day impact of a QE or YE occurring midweek. Same goes for tax dates, large Treasury issuance settlement dates, FOMC dates, etc.

Trading the Turn—SOFR Futures and Year-End Risk

Particularly because the Fed is active and the market anticipates an easing bias, an outright short position for year-end seems a bit precarious IF THE INTENT IS TO HEDGE/BET ON A FUNDING SQUEEZE—a repo problem that sends SOFR higher relative to other funding channels. CME Group has a plethora of futures that SOFR may be spread against (Treas, LIBOR, Eris Swap Futures, options, etc). The most common spread relationship for a squeeze is trading SOFR Futures versus Fed Fund Futures (the dates and contract notional sizes align perfectly). The simplest expression and likely target for the speculative traders is Dec Fed Funds (FFZ9) spread against Dec 1mo SOFR (SERZ9). Back in the September mayhem, Long FF x Short SOFR was a very good, non-rate-directional method to play the squeeze:



There are many considerations and many opinions surrounding year end and funding risk. The consensus in my opinion is that, IF a squeeze surfaces, it may be as early as November and as late as December. Given the aggressive action of the Fed to relieve pressure, there is also an expectation that if problems arise, the Fed will enter the market with 'whatever it takes'. And, IF the Fed needs to show up, they will bring a tsunami of liquidity that will carry OVER year-end. For these reasons, expect to see transactions that are Long Fed Funds in Nov and Dec, coupled with Short positions in SOFR over those two months. To keep from being impaled by the Fed, I likewise expect the opposite position after year-end: Short FF X Long SOFR in Jan'20 futures.

For transaction specifics, give us a call.

JC—for the Fixed Income Group.

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