

Comments on:
Resilience Redux in the U.S. Treasury Market
by Darrell Duffie

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I'd like to thank the organizers of the conference for including me; it's a pleasure to be here and to comment on this terrific and very thought-provoking paper by Darrell Duffie. I should say at the outset that Darrell and I collaborated, along with Tim Geithner and Pat Parkinson, on a G30 report on the Treasury market in 2021, and on a follow-up last year, and our policy views are quite closely aligned. I will highlight a couple of areas of nuance, and emphasis, but I generally agree with much of what Darrell has to say from a policy perspective.

The first part of the paper is a beautiful piece of positive economics, which demonstrates both theoretically and empirically how dealer balance sheet constraints play a central role in shaping market liquidity in extremis. As Darrell showed, in "normal times," when dealers are not too close to their capacity constraint, market liquidity is well explained by the volatility of Treasury returns. This is as you would expect, if dealers are risk averse, or if higher volatility is accompanied by a higher risk of adverse selection.

However, in times like March 2020, this relationship breaks down, and liquidity is much worse than you would expect even given the quite elevated levels of volatility. Here, what seems to matter is that dealers are close to their capacity constraint—loosely speaking, for an individual dealer this is when the quantity of Treasuries that they have taken on to their balance sheet is close to its historical maximum. If you want to explain the March-2020 type outliers in liquidity that are not well-explained by volatility, Darrell's measure of capacity utilization, once it gets in the neighborhood of 40% to 80%, starts to matter in a highly non-linear way. And he and his co-authors have constructed an informative proxy for capacity utilization, in the sense that it does a good job of soaking up a lot of the remaining variation in liquidity that is not accounted for by volatility.

Moreover, Darrell then builds a simple model of market-making that shows that these empirical patterns are more or less exactly what you should expect in a world where dealers face

hard capacity limits. Again, this is a really elegant bit of positive economics: a simple but institutionally well-motivated model that fits some otherwise quite puzzling non-linearities in the data extremely well.

Once Darrell has established that his model is a useful way of understanding the world, he uses it to conduct a policy thought experiment: suppose the central bank has an asset purchase rule that has it buying Treasuries from dealers once their holdings hit a certain percentage of their capacity limit—e.g. the Fed starts taking Treasuries off their hands when their inventories are at say 80% of their maximum capacity. He shows that this intervention dramatically improves market liquidity in the tails. Which is as you would expect if a dealer capacity constraint was the underlying problem.

So that is the first part of the paper. Which again, really advances our understanding of the drivers of market liquidity both in normal times and extremis, and illustrates how central-bank asset purchases can in principle be deployed to improve market function. But before we go from there to a set of policy recommendations, we need to ask a series of questions. To do so, let us stipulate that: (i) we have an interest in preserving market liquidity; and (ii) central-bank asset purchase can help, particularly when capacity constraints are binding or near-binding. Does it follow that such purchases are the best or only way to go? Or are there other approaches that might want to be the first line of defense? And if we are going to in some cases use asset purchases for market function purposes, how do we communicate about them, both *ex ante* and *ex post*?

If Darrell's diagnosis is correct and dealer capacity constraints are indeed at the root of the problem, a natural question to ask is: why take these as exogenously given? Can we relieve these constraints in some way? And while Darrell's empirical measure is agnostic as to the root of the constraints—they could come in part from dealers' internal risk management considerations, for example—one suspects that the risk-insensitive leverage ratio is at least part of what is going on. In which case making the leverage ratio less binding would be a step in the right direction. We hammered on this point in the G30 report, and emphasized that, importantly, defanging the leverage ratio absolutely does not have to come at the cost of weakening overall capital in the banking system. It is straightforward to make a compensating adjustment to risk-based capital

standards to ensure that overall capital does not decline, or indeed actually goes up, in light of a relaxation of the leverage ratio.

So in light of the clear benefits of dialing back the leverage ratio, it was disappointing to me to see that in Vice-Chair Barr's July 10 speech on the so-called holistic capital review, where he laid out a set of enhancements to the risk-based capital standards, when it came to the leverage ratio he said: "With respect to the enhanced supplementary leverage ratio (eSLR), I am not recommending changes to the calibration at this time. With the revisions in risk-based capital requirements I mentioned above, the eSLR generally would not act as the binding constraint at the holding company level, where Treasury market intermediation occurs."

Now clearly, this assertion is directionally correct: if you raise the risk-based requirement enough, even if you do not touch the leverage ratio, it mechanically becomes less binding. And one can surely crunch some numbers to try to get a quantitative handle on the importance of the effect that Vice-Chair Barr alludes to. However, I recall with regret a lesson that I learned during my time at the Board, when we first passed the eSLR. At the time, I was nervous about exactly this issue—that the leverage ratio would become a de facto binding constraint and would distort behavior in undesirable ways. But I allowed myself to be reassured by a Board staff analysis that concluded that this would not be the case. With the benefit of hindsight, we can see that this analysis was too optimistic. So I am inclined to be somewhat more skeptical this time around, and would prefer that the distortions caused by the leverage ratio be dealt with more frontally and more robustly.

A second point, and this was something else that our G30 report emphasized, is the value of having a broad access standing repo facility, where by broad access we meant a willingness to provide repo financing to essentially anyone with Treasuries to pledge to the central bank. In July 2021, the FOMC established two standing repo facilities: a domestic one (SRF) and one for Foreign and International Monetary Authorities (FIMA). However the SRF did not provide as broad access as the G30 recommended, but instead limited access to primary dealers and banks.

Why the emphasis on broad access? In March 2020, we know that much of the selling came from non-bank and non-dealer entities like mutual funds and hedge funds, who had sudden cash needs. And the hope is that if these players know ahead of time that they have certain access to repo financing, they will not feel as much of a rush to sell, thereby cutting off some of the spiral before it starts, and—importantly, in light of Darrell’s analysis—lessening the demands on dealer capacity. Whereas if you have a narrow facility where the Fed only lends to banks and dealers, you need to rely on them on-lending to the mutual funds and hedge funds. And especially in a stress situation, you cannot count on that on-lending happening, because their willingness to do the on-lending is held back by both regulatory constraints and their own internal tolerance for taking on counterparty risk at a time of stress. So with a narrower-access facility, the risk is that the Fed’s liquidity provision effectively gets “stuck” in the bank/dealer sector, and never makes its way to those who need it most.

What about moral hazard—might not a broader facility encourage e.g. hedge funds to lever their positions more aggressively? There are a number of points to be made here, but let me just note one: it is important to think of moral hazard in relative terms. If you do not offer broad access to the SRF, the worry is that, as in March of 2020, the Fed will instead be cornered into having to buy Treasuries on an ad hoc basis, rather than just lending against them. And that clearly creates more of a moral hazard regarding how market participants price duration risk.

Which brings me to a final tool which Darrell emphasized, outright Fed purchases for market-function objectives. So let me start with two points of agreement: (i) clearly, as Darrell shows, such purchases can be a powerful tool when dealer capacity is strained; and (ii) one absolutely does not want to take such a tool off the table. But in my view, it should ideally be used as something of a last resort; I would rather see us do everything we can with respect to easing artificial capacity constraints, and broadening access to repo before turning to purchases. These are both considerably lighter-footprint interventions, and also have the benefit of not creating any confusion between a market-function policy intervention as opposed to one that is being used for monetary-policy purposes.

Nevertheless, central bank purchases are likely to remain an important piece of the arsenal for dealing with market function in extreme cases. That said, one issue is how one talks about them, if at all, ahead of time. In the last line of Darrell’s paper, he writes: “Backstopping the liquidity of this market with transparent official-sector purchase programs will further buttress market resilience.” This sentence is worth unpacking. Does transparent mean that the Fed should communicate *ex ante* the circumstances under which it will intervene in the market? Or more modestly, that when it does intervene, it *ex post* says loudly and clearly, “these are market function purchases, not monetary policy purchases, and so don’t expect us to hold on to the bonds for too long, and don’t draw any inferences whatsoever about the stance of monetary policy”?

The latter type of *ex post* communication absolutely makes sense and is important to do well, as the Bank of England did during their LDI market intervention last year. The former strikes me as much trickier, and I am inclined to be more skittish about any *ex ante* talk about purchases—i.e. of laying out a purchase reaction function, if you will. This is different from my instinct with a repo facility, where it is all about creating broad market confidence that there is a standing facility that promises to provide liquidity.

Why the difference? In Darrell’s model, two conditions hold: (i) you can draw a clean separation between a market that is experiencing dysfunctional liquidity versus one that is simply being hit with large fundamental shocks that ought to be moving prices a lot; and (ii) you have a very good real-time proxy for when the dysfunction sets in—dealer capacity is at say 80% of its maximum. In this kind of idealized world, an *ex ante* rule, such as intervening when dealer capacity hits some threshold, probably makes sense. But I worry that this is not the world we live in.

One observation is that inevitably, there is going to be a high degree of correlation between liquidity being strained and large moves in fundamentals, and in practice articulating a policy that separates the two in a way that is clearly understood by market participants is going to be difficult. So one worry is that either you rule in too much, in sense that you are heard as prepared to jump in any time the Treasury market has an unusually sharp move in yields, which then distorts pricing of duration; or alternatively you rule in too little, and don’t actually give yourself license to intervene when it would make sense.

On the latter, one needs to be careful about over-extrapolating from what is essentially one episode, i.e., March 2020. It may be that next time the Treasury market goes haywire, it does so even if dealer balance sheets are not so overloaded. Indeed, this is not an unreasonable characterization of what happened in the U.K. at the time of the LDI episode: there were enormous strains in the Gilt market, and central-bank intervention was arguably necessary, but the core problem was not with dealer balance sheets, and a dealer-capacity measure based on Darrell's work would likely not have raised the requisite red flags.

To summarize: market-function purchases need to be part of the toolkit, ideally as a last resort after progress has been made on some of the other fronts I have mentioned. My instinct is that if they are used, they will have to be rolled out on an ad hoc basis, because we cannot write down a reliable state-contingent rule ex ante for when they will be most needed. And if central bankers try to talk more broadly and abstractly about the benefits of market-function purchases ex ante without specifying a concrete rule, they run the risk of being heard to be more interventionist than they intend to be, and of creating too much expectation on the part of market participants that they will step in anytime there is a large move in rates. Transparency will nevertheless be important ex post—if it does become necessary to do market-function purchases again at some point in the future, it is critically important to clearly separate them from monetary policy, and to define an exit strategy that fits with the premise that the central bank is only serving as a temporary market maker.