Fix Bank Leverage Requirements Now, in Advance of Upcoming Treasury Market Stress

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Recognizing the damage that a binding leverage ratio could do to the liquidity of Treasury markets during periods of stress, the Federal Reserve took action in 2020 to mitigate the effect of its dramatic increase in the level of reserve balances on banks’ balance sheets. When those actions expired earlier this year, the Fed stated that it would revisit the calibration of leverage ratios, especially the supplementary leverage ratio (SLR). Leverage ratios are currently binding for some of the very largest banks, which are also the most significant providers of intermediation in the Treasury market. Given the agreed-upon need to fix leverage ratio requirements, and two potential stress episodes on the horizon—QE tapering and a debt-ceiling debacle—we demonstrate in this post that the banking agencies should take action to fix the requirements now, rather than looking back with regret in the wake of significant Treasury market volatility because they hadn’t acted earlier.

In April 2020, the Federal Reserve Board allowed banks to deduct deposits held at Federal Reserve Banks (“reserve balances”) and Treasury securities from the denominator of the SLR on a temporary basis. This action was prompted by concerns that the SLR was contributing to the dysfunction in the Treasury market and to banks’ capacity to intermediate during times of stress. A year later, with the Treasury market stabilized, the Federal Reserve allowed those changes to expire but announced in a press release that “[t]o ensure that the SLR—which was established in 2014 as an additional capital requirement—remains effective in an environment of higher reserves,” it “will soon be inviting comment on several potential SLR modifications.” But more than six months later, no public consultation has been launched.

Here we will explain why the Federal Reserve should modify the SLR before it starts to taper its Treasury purchases, and before a possible debt-ceiling debacle in early December. Tapering will require private-market participants to absorb a larger share of ongoing issuance of debt by the Treasury. Meanwhile, failure (or even the threat of failure) to reach agreement on the debt ceiling in December will put severe strains on the Treasury bill and money markets and will result in high inflows into bank deposits, putting additional downward pressure on banks’ leverage ratios. If tapering or a debt-ceiling crisis happen before changes to leverage ratios are made, there is heightened risk of another episode of Treasury market dysfunction. We discuss specific measures that could be taken to eliminate existing disincentives for bank-affiliated securities dealers to offer liquidity to the Treasury and Treasury repo markets under stress, with no material impact on the overall resiliency of the banking system.

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1 Press Release, “Federal Reserve Board announces temporary change to its supplementary leverage ratio rule to ease strains in the Treasury market resulting from the coronavirus and increase banking organizations’ ability to provide credit to households and businesses,” April 1, 2020. https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200401a.htm

2 Press Release, “Federal Reserve Board announces that the temporary change to its supplementary leverage ratio (SLR) for bank holding companies will expire as scheduled on March 31,” March 19, 2021. https://www.federalreserve.gov/newsevents/pressreleases/bcreg20210319a.htm
HOW DOES A LEVERAGE RATIO CONTRIBUTE TO BANK SAFETY AND SOUNDNESS?

A bank’s capital is the amount by which its assets exceed its liabilities. Consequently, capital reduces the likelihood that a bank will become insolvent, that is, have assets worth less than liabilities. Banks generally are subject to two kinds of capital requirements: risk-based and leverage.

Risk-based requirements require banks to maintain capital in an amount determined by multiplying a bank’s risk-weighted assets by a fixed percentage. Risk-weighted assets are calculated by multiplying each type of asset by a weight that increases with the risk of the asset. For example, under the current Basel III standardized approach, a commercial and industrial loan receives a weight of 100 percent, an agency MBS receives a weight of 20 percent and a deposit at a Federal Reserve bank receives a weight of zero. Consequently, risk-based capital requirements require a bank with riskier assets to hold more capital than a bank with less risky assets.

Leverage requirements, in contrast, do not distinguish assets based on risk; all risk weights are set to 1. Two banks with the same amount of equity and assets have the same leverage ratio and the same requirement, even if the assets of one bank are much riskier than the assets of the other. There are two leverage ratios reported by banks in the United States. The tier 1 leverage ratio is the ratio of tier 1 capital (essentially common and preferred equity) to assets. The supplementary leverage ratio is the ratio of tier 1 capital to total leverage exposure (assets plus estimates of off-balance-sheet exposures).

When the Basel Committee on Banking Supervision (BCBS) established international standards for leverage requirements, it stated that it did so to reinforce the risk-based requirements with a simple, non-risk-based “backstop” measure. The Federal Reserve and OCC have similarly stated that leverage and risk-based capital requirements play complementary roles. According to these agencies, a leverage ratio puts a simple and transparent lower bound on banking organization leverage to protect against underestimation of risk, both by banking organizations and by risk-based capital requirements. The Federal Reserve and OCC have indicated that leverage capital requirements should generally act as a backstop to risk-based requirements. They note that when a leverage ratio is calibrated at a level that makes it a binding constraint, it can create incentives for firms to reduce participation in or increase costs for low-risk, low-return businesses.

There is, in fact, near-universal agreement that in a well-designed capital requirement framework, leverage requirements should be defined and calibrated to be a backstop to risk-based requirements because there are two related, undesirable consequences if a bank is bound by a leverage requirement. If the amount of capital a bank is required to hold is determined by a leverage requirement, the bank will have an incentive to shift its portfolio toward riskier assets. Doing so does not increase the amount of capital the bank is required to hold, since the level of its assets would not change but the bank would earn a higher return. Because capital requirements tend to be above the amount of capital a bank would choose on its own, not only would the bank earn a higher return, but it would also earn a higher risk-adjusted return on equity, at least from the bank’s perspective.

Correspondingly, a bank will have a strong incentive to reduce its low-risk, balance-sheet-intensive activities, because every dollar by which the bank’s assets expand must be funded by a material amount of capital. In particular, providing liquidity to the Treasury market through market-making and repo financing offers low-risk, balance-sheet-intensive activities that become unprofitable for a bank bound by a leverage requirement. The

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3 BCBS, “Basel III leverage ratio framework and disclosure requirements,” at 1 (January 2014), https://www.bis.org/publ/bcbs270.pdf. The BCBS also indicated that a leverage requirement was necessary in addition to a risk-weighted capital requirement to “restrict the build-up of leverage in the banking sector to avoid destabilizing deleveraging processes that can damage the broader financial system and the economy . . .”, but that explanation fails to recognize that a risk-based requirement also prevents a build-up of leverage.

unwillingness of bank-affiliated dealers to allocate capital to market-making appears to have contributed to recent episodes of dysfunction in the Treasury market.

The utility of a leverage ratio depends on how likely risk-based capital measures are to significantly understate risk. The classic example was subprime mortgages in the years preceding the Global Financial Crisis. One problem with a leverage ratio is that some assets—most notably, reserves held at the central bank—are indisputably riskless, and therefore have zero possibility of having their risk understated for capital purposes. Including reserve balances therefore makes the leverage ratio a noisier and less effective guard against errors in the risk weights used in risk-based capital requirements.

As we discuss below, the fundamental problem with the leverage ratio circa 2021 is that it was originally calibrated when reserves were a significantly smaller percentage of the balance sheet of money center banks, but now have grown beyond what anyone could have expected or even imagined. Indeed, as we will note, at the time of calibration, reserve balances were projected to be less than one-hundredth of the level they are now.

WHY CAN A BINDING LEVERAGE RATIO CONTRIBUTE TO DYSFUNCTION IN THE TREASURY MARKET?

The evaporation of liquidity in the U.S. Treasury market in March 2020 has been the subject of analysis by market participants, academics and former senior Federal Reserve officials, notably in reports by a Task Force formed by the Brookings Institution and the University of Chicago Booth School of Business and a Working Group of the Group of Thirty. Both these reports identify the fundamental cause of Treasury market illiquidity in March 2020 (and at other times in recent years) as dealer capacity to intermediate in the Treasury markets not keeping pace with the very rapid growth of marketable Treasury debt outstanding. Furthermore, both reports note that nearly all of that capacity is from securities dealers affiliated with large banks. And both reports identify certain aspects of the post-Global Financial Crisis bank regulatory framework as important factors discouraging bank-affiliated dealers from allocating capital to Treasury market intermediation.

In particular, both reports highlight leverage ratios as the most important regulatory disincentive to Treasury market intermediation. Both also recommend changes to existing leverage and risk-based capital requirements to ensure that leverage ratios do not deter banks from offering intermediation capacity in Treasury and Treasury repo markets. The reports emphasize that, because banks are subject to multiple leverage and risk-based requirements, this could be accomplished in various ways without weakening the overall resilience of the banking system. The reports also cautioned that, in light of expectations of further rapid growth in marketable Treasuries outstanding, failure to make the needed adjustments is likely to result in more frequent episodes of Treasury market illiquidity. This will increase burdens on U.S. taxpayers and adversely affect global financial stability, given widespread reliance on U.S. Treasury securities for meeting liquidity needs under stress.

Other things being equal, leverage requirements (as opposed to risk-based requirements) are more likely to bind when banks hold relatively more low-risk assets like reserve balances or Treasuries. The enhanced supplementary leverage ratio (eSLR), which is generally applicable to the U.S. GSIBs, was originally set 2 percentage points above a 3-percent SLR, though for insured depository institutions of GSIBs, the eSLR requirement was even higher at 6 percent. When the Federal Reserve adopted the eSLR in April 2014 at an open Board meeting, several Board members expressed concern about the unintended consequences of a binding leverage ratio. Staff noted that the impact of the SLR on bank balance sheets would likely be modest in part because “the level of reserve balances will

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be lower in the future as the size of the Federal Reserve’s balance sheet is reduced. . . .” ⁶ At that time, reserve balances were $2.6 trillion but were projected to decline to $25 billion by 2021.⁷

Reserve balances did not decline to $25 billion, however. Instead, the Federal Reserve decided to change how it implemented monetary policy, adopting a large-balance-sheet approach that required about $1.7 trillion in reserve balances. Because the banking system as a whole generally has to hold the reserve balances that the Fed creates through its implementation of monetary policy, all those added completely safe assets reduce banks’ leverage ratios, making the leverage ratio more likely to bind.⁸ In addition, the Federal Reserve (and other central banks) now are increasingly likely to respond to economic downturns by increasing their balance sheets, which in turn forces the banking system to hold still more reserves.⁹ This dynamic has the effect of making leverage ratios procyclical rather than moderating the procyclicality that can be a feature of risk-based capital requirements, as was the intention when supplementary leverage requirements were introduced to complement risk-based requirements.¹⁰

In April 2020, with the onset of the COVID-19 pandemic, with the Federal Reserve’s balance sheet exploding because of its massive purchases of Treasury securities and Agency MBS and with the Treasury market under considerable strain, the Federal Reserve decided to temporarily exclude reserve balances and Treasury securities from the assets used to calculate capital requirements under the SLR. The banking agencies, including the Federal Reserve, OCC and FDIC, followed shortly thereafter with a similar change to the bank-level SLR, although with added requirements that resulted in few banks opting in.¹¹ At the time of these actions, reserve balances were nearly $3 trillion.

A year later, in March 2021, the temporary exclusion of Treasuries and reserves from the SLR expired on schedule. At that time, the Federal Reserve indicated that it recognized that adjustments to address the design and calibration of the SLR over time were needed “because of recent growth in the supply of central bank reserves and the issuance of Treasury securities” and “to prevent strains from developing that could both constrain economic growth and undermine financial stability.”¹² The banking agencies’ companion press release simply announced termination of the SLR deductions and did not contain similar statements, making it unclear if modifications would be by all three banking agencies or only the Federal Reserve.¹³

More recently, Chair Powell reiterated that the Federal Reserve was looking at modifying the SLR without reducing overall capital requirements to ensure leverage ratios are not binding constraints, because that gives banks

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⁸ Or, as we have noted before, it is difficult to understand why, if the Treasury issues a security and the Federal Reserve buys it, bank capital requirements should go up. https://bpi.com/If-the-treasury-issues-debt-and-the-fed-buys-it-should-bank-capital-requirements-go-up/
⁹ There effects are moderated to the extent that the Fed’s balance sheet expansion is funded through repurchase agreements with money funds and other nonbank counterparties.
¹⁰ Federal Reserve Board, “Transcript of Open Board Meeting” at 2 (April 8, 2014), https://www.federalreserve.gov/mediacenter/files/open-board-meeting-transcript-20140409.pdf (then-Governor Tarullo stating, “The leverage ratio serves as a critical backstop to the risk-based capital requirements—particularly for the most systemic banking firms—and moderates some of the procyclicality in the risk-based capital regime”).
incentives to take on more risk.\textsuperscript{14} However, to date the Federal Reserve has not taken action to adjust the SLR, even though the level of reserve balances exceeds $4 trillion and the risk of further Treasury market dysfunction has grown, a risk that is magnified by the failure to modify the SLR. The status of Federal Reserve action remains uncertain, and whether the banking agencies would act together likewise is unclear.\textsuperscript{15}

\textbf{WHY DO EXISTING LEVERAGE REQUIREMENTS SIGNIFICANTLY INCREASE THE RISK OF TREASURY MARKET DYSFUNCTION IN THE NEXT FEW MONTHS?}

With reserve balances at a record $4.1 trillion, the leverage ratio is more binding than it has ever been. As can be seen in Exhibit 1, the SLR (and eSLR) requirement binds for banks that account for a significant share of large-bank assets. More precisely, the SLR requirement delivers the highest tier 1 capital requirement for four of the 20 largest banks accounting for 45 percent of large-bank assets.\textsuperscript{16} The tier 1 risk-based requirement binds for banks accounting for 47 percent of large-bank assets, and the tier 1 leverage requirement is binding for the remaining 8 percent of the sample. The stringency of the SLR has prompted some banks to push deposits off their balance sheets and has contributed to an explosion of the Federal Reserve’s overnight reverse repo facility.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{Exhibit1.png}
\caption{Exhibit 1: Which Tier 1 Capital Ratio Binds at Large Banks Weighted by Total Assets}
\end{figure}

\textit{Note: The stringency of risk-based and leverage requirements for each bank is weighted by total assets. Source: Federal Reserve Board, FR Y-9C, FFIEC 101.}

\textsuperscript{15} The Task Force on Financial Stability noted: “This leaves major dealer banks considerably uncertain about the capital requirements they will face and makes prompt focus and resolution of SLR rule shortcomings in a rising reserve environment essential.” \textit{Task Force on Financial Stability} at 41.
\textsuperscript{16} Although the SLR requirement is only binding for the very largest banks, it includes some of the most significant providers of intermediation in the Treasury market.
The potential for binding leverage ratios to add to Treasury market dysfunction is not a mere theoretical possibility. It appears likely that the Federal Reserve will begin tapering its purchases of Treasury securities (as well as its purchases of Agency MBS) in early November and that a debt-ceiling debacle in early December is possible.

We note that relaxation of the leverage ratios would not allow banks to reduce capital by an amount that would meaningfully reduce their resilience. Although the SLR is binding for a large share of banks (weighted by their total assets), the risk-based requirements are close enough to being binding so that a relaxation of the SLR would not allow banks to reduce materially their holdings of tier 1 capital. Adjusting the SLR so that it was a backstop to risk-based requirements would reduce the $1.1 trillion in tier 1 capital that the banks are required to hold by one-fourtieth. The reduction is approximately equivalent to the amount of capital these banks are holding, because reserve balances have grown to $4 trillion rather than declining to $25 billion, as was expected when the SLR was calibrated.

The volatility in Treasury markets in advance of the last time the Fed tapered was severe enough that the episode earned its own name: the “Taper Tantrum.” Between May and September 2013, the 10-year Treasury yield rose 1½ percentage points as anticipation of the Fed’s taper grew. In recent months, the reaction has been relatively mild, although the 10-year yield has risen about 25 basis points since Chair Powell signaled on Sept. 23 that tapering was likely to begin in early November. Notably, then-Vice Chair Quarles observed a year ago that an important reason why the FOMC was purchasing Treasury securities was because the market did not have the capacity to deal with the volumes that occurred when the market was under stress; as the FOMC purchases decline, capacity constraints will become more likely to bind.17

In August 2011 and again in October 2013, the debt ceiling loomed, and there were concerns that the federal government would default. During both episodes, the FOMC met in emergency session to discuss how financial markets and banks were being affected by the prospect of default, what might happen if there was a default, and what steps the Fed might take in response. The transcripts of both meetings are available here and here. In both instances, money markets and the market for short-term Treasury securities were highly disrupted. In 2011, when Congress raised the limit before the situation became too extreme, Treasury repo rates and Treasury bill rates rose by 20 basis points and investments in government money market mutual funds declined by 8 percent, with most of the investments shifting to deposits at commercial banks. In 2013, Treasury bill rates rose as much as 66 basis points, and Treasury repo rates rose 20 basis points. Outflows from government money-market funds were “sizeable,” and bank deposits grew $150 billion in the week ending Oct. 16.18

In both debacles, as described in the transcripts cited above, the Fed and the other banking agencies prepared guidance for banks stating that if the government defaulted, Treasury securities and agency MBS risk weights would not go up for capital purposes, and that examiners understood that deposit inflows and draws on lines of credit would put downward pressure on banks’ capital ratios.

**HOW MIGHT THE SLR BE MODIFIED TO RESTORE IT TO A BACKSTOP MEASURE AS INTENDED, AND ONE THAT DOES NOT POSE SIGNIFICANT RISK TO TREASURY MARKET FUNCTIONING?**

One option to restore leverage ratios to a backstop would be to exclude reserve balances from the SLR denominator (and make comparable changes to the tier 1 leverage ratio requirements). The advantages of excluding reserve balances from the denominator of the SLR is that it puts the SLR back into its intended position as a backstop to risk-based requirements, and in a manner that makes the tightness of the SLR constraint on

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capital independent of future growth in or decline of reserve balances. Another advantage is that this option would mitigate the procyclicality in the SLR requirement, now that the new normal appears to be for the Federal Reserve to increase reserve balances in bad times. It also improves the effectiveness of the SLR as a guard against mistakes in calibrating risk weights by eliminating an asset whose correct risk weight is unarguably zero. A disadvantage of excluding reserve balances is that it reduces the attraction of other assets, in particular Treasuries and Treasury reverse repos, relative to reserve balances.\(^\text{19}\) The reduced attraction could compound the Treasury market troubles the exclusion of reserve balances is intended to address. Moreover, the SLR requirement would continue to discourage banks from allocating capital to Treasury market intermediation, especially if it were calibrated up. This is because of the possibility that it could become binding in the future and that the allocation of capital must then be accompanied by investments in infrastructure that cannot be reversed quickly or without costs.

The BCBS permits jurisdictions at national discretion to temporarily exclude reserve balances from the denominator of the SLR to facilitate the implementation of monetary policies under exceptional macroeconomic circumstances, provided that the calibration of the minimum SLR requirement is adjusted upward.\(^\text{20}\) Removing reserve balances from the denominator of the SLR has been done by other central banks. In August 2016, the Bank of England removed reserve balances from the denominator of the SLR calculations for U.K. banks. In September 2020, the ECB allowed banks to exclude central bank exposures while exceptional macroeconomic conditions persist.

Different perspectives could argue for various amounts by which the SLR requirement could be adjusted up if reserves were excluded. The SLR requirement could be calibrated upward to offset the current aggregate change in the SLR denominator—in the U.S. case, about 35 basis points.\(^\text{21}\) The requirement could also be adjusted up to reflect the level of reserve balances in the banking system when the rule was adopted in 2014—about 20 basis points. Alternatively, the rule could be adjusted up based on the level of reserve balances just before the coronavirus event, which also happens to be about the Federal Reserve’s estimate of the steady state level of reserve balances—about 13 basis points.\(^\text{22}\) Or the SLR could be adjusted up by the amount of reserve balances the Board expected to be the steady state level back in 2014—essentially zero, so no adjustment.\(^\text{23}\) Because the Federal Reserve would be taking action to make the SLR less binding, a large upward adjustment would seem to be inconsistent with the intent of the exclusion.

Another way to make the SLR requirement less binding for the U.S. GSIBs would be to change the flat 2-percent eSLR buffer adopted in 2014 to one-half of the GSIB surcharges. In December 2017, the Basel Committee adopted an international standard that sets the eSLR buffer to one-half of GSIB surcharges, and in 2018 the Federal Reserve and OCC made a consistent recommendation that the eSLR buffer of 2 percent be replaced with one-half the U.S. GSIB surcharges. Because almost all the GSIB surcharges are less than 4 percent, this change would make eSLR less binding. It would also make leverage requirements for each GSIB sensitive to the bank’s systemic risk, be consistent with the international standard, and not create incentives for banks to substitute out of Treasuries or Treasury reverse repos. And of course there are disadvantages to this approach. The leverage requirement could

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\(^\text{19}\) See the BPI blog post “Excluding Reserves from the Leverage Ratio Would Make Repo Market Volatility Worse,” October 24, 2019, https://bpi.com/excluding-reserves-from-the-leverage-ratio-would-make-repo-market-volatility-worse/. There does not appear to be any interest at the banking agencies in excluding Treasuries and Treasury reverse repos in addition to reserve balances.

\(^\text{20}\) BCBS, Finalising Post Crisis Reforms at 144, para. 26 (2017), Basel III: Finalising post-crisis reforms (bis.org)

\(^\text{21}\) If reserves continue to grow, this means that the longer it takes for a jurisdiction to exclude reserve balances, the larger the upward adjustment to the minimum requirement.

\(^\text{22}\) This is similar to the ECB adjustment. The main difference is the ECB did a bank-by-bank adjustment, which may be more equitable given the heterogeneity in the SLR requirement and banks’ holdings of reserve balances at the end of 2019.

\(^\text{23}\) One complication in these calculations is that if banks were not holding reserve balances, they would presumably be holding other liquid assets. They would do this both for their own liquidity risk-management purposes and to satisfy examination and regulatory requirements; and/or they would be lowering their projected net cash outflows under stress, reducing their need for HQLA.
again become binding if reserve balances grew substantially further, the calibration could become easier than intended if reserve balances declined substantially, and the SLR would remain procyclical if the Fed continues to use QE actively as a monetary policy tool.

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