

## Understanding the New Liquidity Coverage Ratio Requirements

*By Mark House, Tim Sablik, and John R. Walter*

**In 2014, U.S. financial regulators introduced new liquidity coverage ratio requirements for qualified banking institutions. This regulation, based on guidelines from the Basel III accord, requires that banks hold minimum levels of liquid assets to withstand a period of financial stress. It is a response to the financial crisis of 2007–08, during which many banks found themselves suddenly cut off from short-term funding. But the impact of liquidity requirements remains an area of ongoing debate and economic research.**

The financial crisis of 2007–08 revealed the dangers of banks' underinvestment in liquid assets or overreliance on high-risk funding sources. At some level, however, liquidity risk is part of a core function performed by banks: maturity transformation. In traditional banking, this means accepting deposits and making loans. This leads to "maturity mismatch" between banks' liabilities and assets—many of a bank's liabilities are short-term and payable on demand to depositors and other creditors, while many of its assets are long-term and illiquid. A bank without enough liquid assets to meet a sudden increase in demand on its liability side may be forced to sell assets quickly at reduced prices or suspend operations. And since some banks act as sources of funding for other banks or financial firms, strain at one institution could cause broader disruptions to the financial system.

While large nonbank financial institutions rely on funding sources other than deposits, the maturity mismatch principle is still the same. Short-term funding sources, such as commercial paper and repurchase agreement (repos), are rolled

over very frequently—sometimes even daily. But if creditors suspect weakness on the part of the bank or the securities underlying a repo, they may choose not to roll over the debt in favor of extending that credit to another institution. This sudden loss of funding could create a scenario similar to a classic bank run.

During the crisis of 2007–08, liquidity positions deteriorated sharply at major financial institutions, though they have since recovered. (See Figure 1.) This recovery coincides with new regulations intended to bolster banks' liquidity. In addition to revising international capital standards for banks, the Basel III accord introduces new liquidity standards.<sup>1</sup> The first of those standards to go into effect is the liquidity coverage ratio, or LCR. The Group of Governors and Heads of Supervision of the Basel Committee on Banking Supervision issued final guidelines for the LCR in 2013, and financial regulators in the United States issued rules based on those standards in September 2014.<sup>2</sup> Qualified U.S. banks are expected to be fully compliant with the new rules by 2017, and phase-in of the rules has already

begun. This *Economic Brief* explains the LCR and explores some of the questions economists have raised about the new liquidity requirements.

### What Is the LCR?

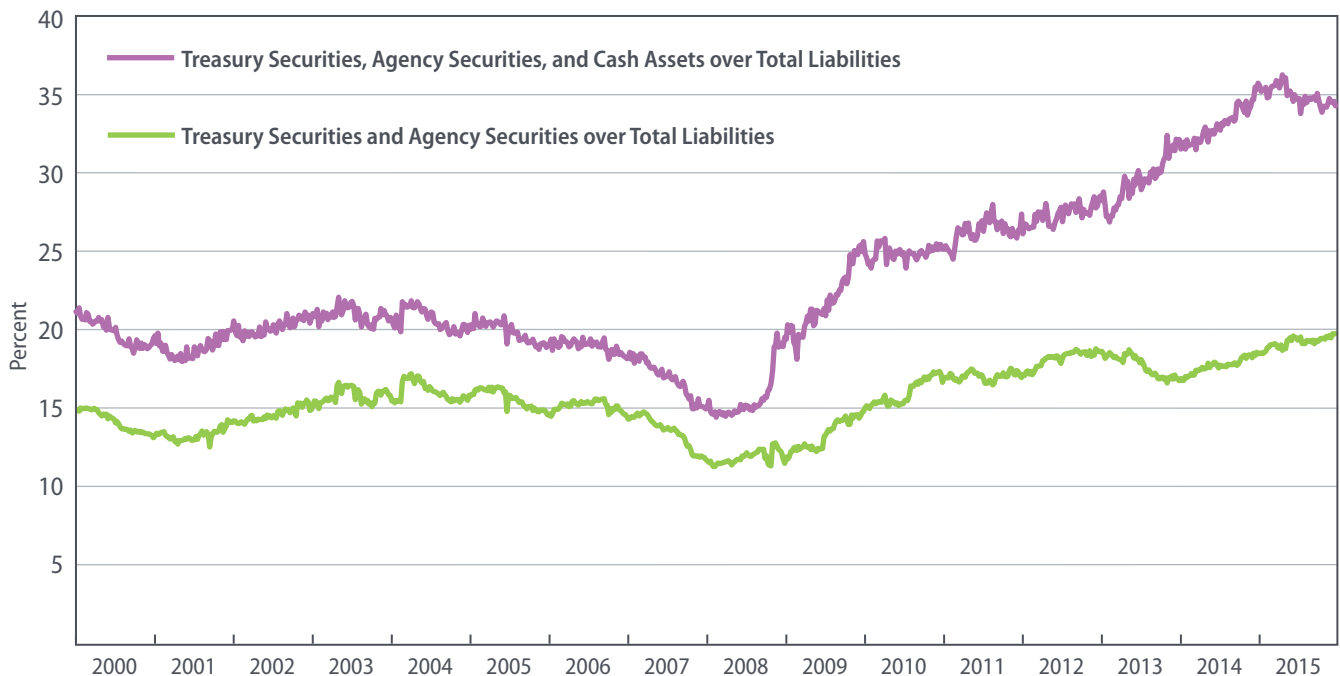
Financial regulators over the years have taken a variety of approaches to mitigate the damage from liquidity crises. Deposit insurance can reduce the likelihood of runs by depositors by guaranteeing repayment up to a certain threshold in the event of bank failure. A central bank also can act as a “lender of last resort,” providing emergency liquidity to solvent banks during a crisis. While both of these approaches can help mitigate liquidity crises, they have shortcomings. For example, relying entirely on a lender of last resort to extend liquidity to solvent banking institutions in times of crisis may encourage firms to hold less liquidity on their own, ultimately making them more vulnerable to runs. Moreover, during a crisis it is not always easy for the central bank to determine which institutions are insolvent versus merely experiencing a temporary liquidity shortage.

And while insuring deposits may reduce the risk of runs on deposits, uninsured short-term funding is still susceptible to runs, as witnessed in 2007–08.

The LCR attempts to protect banks against short-term, severe liquidity stress events by mandating that they hold enough high-quality liquid assets (HQLA) to cover expected net cash outflows during a 30-day stress period. In theory, banks with an LCR of at least 100 percent have enough liquidity to withstand a month of elevated financial stress, giving bank management and regulators additional time to respond if necessary. The U.S. rule was issued by the Federal Reserve, the Office of the Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC).

The assets that make up the numerator of the LCR are divided into three groups based on their expected ability to serve as liquid assets during a crisis. Level 1 assets are considered the most liquid, and as such count toward the LCR on a 1:1 basis. These

**Figure 1: Liquid Assets at the 25 Largest U.S. Commercial Banks**



**Source:** Board of Governors of the Federal Reserve System, “Assets and Liabilities of Commercial Banks in the United States,” Weekly Statistical Releases, H.8

**Notes:** Treasury securities, agency securities, and reserves are among the largest categories of high-quality liquid assets (HQLA) under the LCR standard. The lavender line above includes cash assets, a category that is largely composed of reserves but also includes some assets that don’t qualify as HQLA under the LCR standard.

include things like central bank reserves, U.S. Treasury securities, and securities issued or guaranteed by the least risky national governments and central banks. Level 2A assets are expected to be somewhat less liquid in a crisis, and their value is discounted by 15 percent when calculating the LCR. Additionally, they can make up no more than 40 percent of an organization's total stock of liquid reserves. They include securities issued by U.S. government-sponsored enterprises, such as Fannie Mae and Freddie Mac, and securities issued or guaranteed by slightly riskier national governments and central banks. Level 2B assets are deemed to be the least liquid of the assets eligible as HQLA and include certain corporate debt and equity securities. They are discounted by 50 percent and capped at 15 percent of an institution's total stock of liquid reserves. (See Table 1 for a more detailed breakdown of HQLA-eligible assets.)

While based heavily on the Basel III standards, the U.S. LCR defines HQLA somewhat more conservatively. For example, certain privately issued mortgage-backed securities count as HQLA under Basel III but not under the U.S. rule. In addition, securities issued by public sector entities below the national level and

bonds and securities issued by financial institutions are not eligible under the U.S. rule.

The U.S. LCR also applies differently to institutions based on their size. The full rule applies to institutions with at least \$250 billion in total assets or at least \$10 billion in on-balance sheet foreign exposure (for example, loans to or investments with foreign firms). Those institutions had to meet 80 percent of their LCR requirements in 2015, and they must be fully compliant by 2017. A modified LCR applies to financial institutions with between \$50 billion and \$250 billion in assets. Those institutions must be 90 percent compliant starting this year and fully compliant by 2017 as well. Institutions subject to this modified rule face less-stringent quantitative liquidity requirements. Their expected net cash outflow, for example, is multiplied by 70 percent to reflect their lower systemic importance and risk profile. Also, institutions subject to the full rule must calculate their LCR daily, while those subject to the modified rule only need to do so monthly. If any institution's LCR falls below 100 percent, it must notify its primary regulator and may be required to submit a plan for regaining compliance.

**Table 1: Categories of High-Quality Liquid Assets under the Liquidity Coverage Ratio Standard**

Category	Cap	Discount	Included Assets
Level 1	None	0%	<ul style="list-style-type: none"> <li>◆ Unrestricted Federal Reserve balances</li> <li>◆ U.S. Treasury securities</li> <li>◆ Liquid and marketable securities issued by other U.S. government agencies whose obligations are explicitly guaranteed by the U.S. government</li> <li>◆ Unrestricted reserves held at foreign central banks</li> <li>◆ Low-risk securities issued or guaranteed by a foreign sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank and that meet certain criteria</li> </ul>
Level 2A	40%	15%	<ul style="list-style-type: none"> <li>◆ Certain securities issued by a U.S. government-sponsored enterprise such as Fannie Mae or Freddie Mac</li> <li>◆ Higher-risk securities issued or guaranteed by a foreign sovereign entity or a multilateral development bank and that meet certain criteria</li> </ul>
Level 2B	15%	50%	<ul style="list-style-type: none"> <li>◆ Liquid and marketable corporate debt securities that meet certain criteria</li> <li>◆ Liquid and marketable publicly traded common stocks that meet certain criteria</li> </ul>

Source: Based on Davis Polk & Wardwell LLP, "U.S. Basel III Liquidity Coverage Ratio Final Rule: Visual Memorandum," September 23, 2014

Notes: The "cap" is the maximum percentage of a bank's high-quality liquid assets that can come from each category. The values of Level 2A and Level 2B assets are discounted to reflect assumptions about their lower liquidity and higher risk.

## The Challenges of Regulating Liquidity

While the Basel III LCR represents the first global quantitative liquidity standard, liquidity requirements at banks are not new. Reserve requirements in the United States date back as far as 1837.<sup>3</sup> Such rules require banks to hold liquid assets equal to some fraction of their deposits. But despite this long history, economists still do not have a well-developed theory of liquidity requirements.<sup>4</sup> First, it is unclear whether banks' failure to hold sufficient liquidity to protect themselves against crisis represents a failure of private market behavior to bring about desirable outcomes. One commonly cited theory supporting this market failure view argues that individual banks fail to internalize the costs of their liquidity decisions for the financial system as a whole. Firms expect that they will be able to trade with more liquid firms if they get into trouble, allowing them to hold a larger percentage of their portfolio in higher-yield, illiquid assets during normal times. But if every firm expects to "free ride" on other institutions' liquidity in this way, the financial system as a whole may hold too little liquidity. Other models suggest that moral hazard related to bailouts or information asymmetry about bank assets could cause banks to hold too little liquidity. But implementing liquidity regulations without a clear indication of market failure may introduce new inefficiencies.<sup>5</sup>

Determining the optimal levels for liquidity requirements presents another difficult challenge. If regulators overestimate outflows in the LCR, banks could be forced to hold too much liquidity, introducing inefficiencies into the financial system. To some extent, this may be unavoidable, according to work by Douglas Diamond and Anil Kashyap of the University of Chicago.<sup>6</sup> In their model, institutions subject to the LCR must always hold some liquid assets in reserve, even during a crisis, to deter a run. It would be more efficient for an institution to completely use its liquidity reserves during a crisis, but neither the institution nor the public can know the depth of the crisis until after the fact. As a result, the bank must always hold some liquidity in reserve to protect itself from a run and to demonstrate to depositors and creditors its ability to withstand a run. Despite this,

Diamond and Kashyap note, the LCR may still result in better outcomes than would occur in the absence of liquidity rules.

A related concern is that banks may not actually use any of their mandated stock of liquidity during a crisis, either because they fear being penalized for violating the LCR or because they fear the negative signal such a violation would send to the market. Indeed, according to Federal Reserve Board of Governors economist Mark Carlson, regulators in the National Banking Era of 1863–1913 had this concern about reserve requirements. On the one hand, the penalty for violating reserve requirements needed to be high enough to ensure banks had an incentive to hold the required amount of liquidity in normal times, but on the other hand, it couldn't be so severe that banks were afraid to use that liquidity during a crisis. On the whole, Carlson finds that banks in the National Banking Era tended to hoard reserves during crises rather than loan them to other distressed institutions, reducing the overall liquidity of the financial system.<sup>7</sup>

Another concern is that liquidity regulations like the LCR could push risky activity to smaller institutions or into the unregulated "shadow banking" sector. Richmond Fed economist Borys Grochulski and Texas A&M University economist Yuzhe Zhang develop a model of liquidity regulation in the presence of shadow banking. They find that access to the shadow banking sector limits the effectiveness of regulation. They propose a flat-rate tax on illiquid assets combined with a subsidy for liquid assets as a potential solution.<sup>8</sup>

Finally, Morten Bech of the Bank for International Settlements and Todd Keister of Rutgers University explore how the LCR may impact monetary policy.<sup>9</sup> The Fed's principal tool for monetary policy has long been the federal funds rate—the interest rate banks charge each other for overnight borrowing. Banks use overnight loans to help satisfy their reserve requirement. But while overnight loans add reserves to a bank's balance sheet, which count as HQLA in the numerator of the LCR, they do not help satisfy the requirement because they represent a source

of funding that can run off within the 30-day stress scenario modeled in the LCR denominator. As a result, banks facing an LCR shortfall may prefer term funding, which has maturity of greater than 30 days and satisfies both LCR and reserve requirements. This could lower the demand for overnight loans, pushing down the overnight rate and reducing the effectiveness of traditional monetary policy. Bech and Keister suggest that central banks can adapt to such changes by targeting the term rate rather than the overnight rate, for example.

### Other Liquidity Regulations

The LCR is just one component of the liquidity regulations proposed in the aftermath of the financial crisis of 2007–08.<sup>10</sup> The Fed approved a capital surcharge rule in July 2015, which incorporates a penalty on short-term wholesale funding that applies to global systemically important banking organizations (those with more than \$250 billion in assets).<sup>11</sup> Basel III also contains another provision designed to limit banks' reliance on short-term wholesale funding: the Net Stable Funding Ratio (NSFR). The NSFR requires banks to hold a certain level of their funding, relative to their asset profile, in sources that are expected to remain stable for at least one year. In this way, it serves as a complement to the LCR. The LCR mandates that banks hold liquid assets to cover a run on their liabilities. But given that they still have some less-liquid assets, the NSFR requires institutions to hold stable liabilities that are unlikely to run. Regulators have not yet introduced a proposed rule for implementing the NSFR in the United States. In the meantime, economists will continue to study how liquidity regulations like these may impact the financial system. ■

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### Endnotes

- <sup>1</sup> For a primer on the revisions to capital standards contained in Basel III, see Huberto M. Ennis and David A. Price, "Basel III and the Continuing Evolution of Bank Capital Regulation," Federal Reserve Bank of Richmond *Economic Brief* No. 11-06, June 2011.
- <sup>2</sup> "Liquidity Coverage Ratio: Liquidity Risk Measurement Standards," *Federal Register*, vol. 79, no. 197, October 10, 2014.
- <sup>3</sup> Mark A. Carlson, "Lessons from the Historical Use of Reserve Requirements in the United States to Promote Bank Liquidity," Board of Governors of the Federal Reserve System Finance and Economics Discussion Series No. 2013-11, January 24, 2013.
- <sup>4</sup> University of Pennsylvania economist Franklin Allen writes, "With capital regulation there is a huge literature but little agreement on the optimal level of requirements. With liquidity regulation, we do not even know what to argue about." See Franklin Allen, "How Should Bank Liquidity Be Regulated?" Presentation at the Federal Reserve Bank of Atlanta's 2014 Financial Markets Conference on "Tuning Financial Regulation for Stability and Efficiency," April 15–16, 2014.
- <sup>5</sup> For a discussion of these issues, see Borys Grochulski and Wendy Morrison, "Understanding Market Failure in the 2007–08 Crisis," Federal Reserve Bank of Richmond *Economic Brief* No. 14-12, December 2014.
- <sup>6</sup> Douglas W. Diamond and Anil K. Kashyap, "Liquidity Requirements, Liquidity Choice, and Financial Stability," Manuscript, Revised November 2015.
- <sup>7</sup> Carlson, p. 15–16.
- <sup>8</sup> Borys Grochulski and Yuzhe Zhang, "Optimal Liquidity Regulation with Shadow Banking," Federal Reserve Bank of Richmond Working Paper No. 15-12R, November 5, 2015.
- <sup>9</sup> Morten L. Bech and Todd Keister, "Liquidity Regulation and the Implementation of Monetary Policy," Bank for International Settlements Working Paper No. 432, October 2013.
- <sup>10</sup> For an overview, see Eva Liebmann and Joe Peek, "Global Standards for Liquidity Regulation," Federal Reserve Bank of Boston *Current Policy Perspectives* No. 15-3, July 2015.
- <sup>11</sup> Board of Governors of the Federal Reserve System, press release summarizing the Fed's final rule requiring the largest, most systemically important U.S. bank holding companies to strengthen their capital positions, July 20, 2015.

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