



**The Basel III Liquidity Framework: Impacts and
Recommendations**

November 2, 2011

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Introduction

The Clearing House Association L.L.C. (The Clearing House), an association of major commercial banks,¹ and our members are committed to effective liquidity-risk management and strongly support efforts by the Basel Committee on Banking Supervision (Basel Committee or BCBS), the Financial Stability Board (FSB) and U.S. regulators to improve both regulatory standards and banking-industry practice in this area. The cornerstone of the regulatory community's efforts to enhance liquidity-risk management is the Basel Committee's final liquidity framework issued in December 2010 (Basel III liquidity framework).²

The Clearing House has closely followed the development of the Basel liquidity framework, submitting comment letters both to the Basel Committee and the U.S. regulators.³ We have made substantial effort to inform our views with quantitative analysis. We have prepared and shared with U.S. regulators as well as the BCBS several quantitative analyses of the impact of Basel III, both liquidity and capital, on U.S. banks. We are enclosing with this white paper an analysis entitled Assessing the Liquidity Coverage Ratio (the Liquidity Study).⁴

Although this white paper reflects our views as to the strengths and deficiencies of the Basel III liquidity framework as reflected in comment letters and the aforementioned studies, our objective in preparing this white paper, as well as the Liquidity Study, is broader – namely, to present an assessment of certain financial-market, public-policy and borrower implications of the Basel III liquidity framework and address more generally improvements in approaches to liquidity-risk management that banks have implemented since the onset of the financial crisis, focusing on the liquidity coverage ratio (LCR), which is the 30-day liquidity measure, in that framework.⁵

¹ Established in 1853, The Clearing House is the oldest banking association and payments company in the United States. It is owned by the world's largest commercial banks, which collectively employ over 2 million people and hold more than half of all U.S. deposits. The Clearing House Association L.L.C. is a nonpartisan advocacy organization representing – through regulatory comment letters, amicus briefs and white papers – the interests of its owner banks on a variety of systemically important banking issues. Its affiliate, The Clearing House Payments Company L.L.C., provides payment, clearing, and settlement services to its member banks and other financial institutions, clearing almost \$2 trillion daily and representing nearly half of the automated-clearing-house, funds-transfer, and check-image payments made in the U.S. See The Clearing House's web page at www.theclearinghouse.org.

² BCBS, *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring* (Dec. 16, 2010), available at <http://www.bis.org/publ/bcbs188.pdf>.

³ Letter from The Clearing House to the BCBS (April 16, 2010); Letter from The Clearing House to Timothy F. Geithner, Secretary, U.S. Department of the Treasury, Ben S. Bernanke, Chairman, Board of Governors of the Federal Reserve System, Sheila C. Bair, Chairman, Federal Deposit Insurance Corporation, John G. Walsh, Acting Comptroller of the Currency, John E. Bowman, Acting Director, Office of Thrift Supervision, and William C. Dudley, President, Federal Reserve Bank of New York (November 5, 2010). Both letters are available on The Clearing House's website at <http://www.theclearinghouse.org>.

⁴ Some of the results in the Liquidity Study are based on proprietary information and are thus provided only under confidential conditions to U.S. regulators, although conclusions drawn from that information are addressed in this white paper where possible and appropriate.

⁵ We are not addressing in any length in this white paper the other new liquidity measure included in the Basel III liquidity framework – the one-year liquidity measure referred to as the net stable funding ratio (NSFR). As

A. Executive Summary

Key observations and conclusions presented in this paper include the following:

- **The U.S. banking industry's estimated LCR shortfall has increased, from approximately \$1.1 trillion at December 2009 (representing a 70% industry-wide LCR) to approximately \$1.4 trillion at December 2010 (representing a 60% industry-wide LCR), both as reflected in the Liquidity Study.** The \$1.4 trillion estimated shortfall at December 2010 is a conservative, and likely understated, amount for two reasons. First, it reflects the liquidity shortfall necessary for U.S. banks to achieve a 100% LCR, as opposed to a higher LCR ratio (110%, for example) that we expect banks will manage to in order to avoid the supervisory and other consequences of an LCR deficiency. Second, the \$1.4 trillion is based upon bank balance sheets as of December 2010, which are atypical, reflecting for a variety of reasons disproportionate holdings of cash, cash equivalents and Treasury securities. Assuming banks ultimately manage to a 110% LCR, and based on a more normalized pre-crisis balance sheet with more loans and less cash, cash equivalents and Treasury securities, the differential could be as much as \$2.0 trillion. The enormity of this shortfall might suggest that U.S. banks are at undue liquidity risk. However, this is simply not the case. The shortfall is primarily driven by the specific prescriptions and quantitative calibrations of the Basel III framework that are neither based on sound empirical research nor supported by industry experience during the 2008 financial crisis. The mere fact that the U.S. banking industry's liquid asset shortfall under the LCR increased between year-end 2009 and 2010, while during the same period banks increased the proportion of their assets consisting of cash, cash equivalents, Treasury securities and other liquid assets and reduced their net cash outflows over a 30-day horizon, illustrates the importance of revisiting and revising elements of the LCR. See Section I of this white paper.
- **U.S. implementation of the LCR needs to take into account the unique circumstances of U.S. banks and U.S. banking, financial and housing markets.** Certain of the LCR's provisions produce unduly conservative measures of liquidity for U.S. banks, failing to accurately capture their liquidity positions. These fall into two areas. The first is calibrations – run-off factors for deposits and other liabilities and assumed draw rates on credit and liquidity facilities – that are much more conservative than the experience of even the most stressed banks during their most stressed periods during the financial crisis (i.e., worst case/worst period experience). The second is sources of liquidity that (i) are unduly limited because they are treated as Level 2 (L2) assets subject to a cap equal to 40% of Level 1 (L1) assets, notwithstanding that they may have better credit characteristics and were demonstrably more liquid throughout the financial crisis than some L1 assets (for example, Fannie Mae and Freddie Mac MBS and debentures as compared to certain European sovereign securities), or (ii) that are not even recognized as a source of liquidity (borrowing capacity with Federal Home Loan Banks (FHLBs), for example). See Section II of this white paper.

indicated in our comment letters referred to in footnote 2, while we believe that the LCR is a sensible measure similar to standards applied by most banks for management purposes, the NSFR is a much less common approach and, we believe, requires a more fundamental review and revision before serious consideration could be given to its implementation.

- **In implementing the LCR, international regulators must balance the desirability of uniform international standards against the need to accommodate unique considerations in specific jurisdictions.** It is already becoming apparent that regulators in jurisdictions other than the United States are measuring strict implementation against the need to craft a meaningful domestic liquidity-risk regulatory regime. At least pending refinement of the LCR through the observation period to better adapt to unique national circumstances, it is extremely important that the U.S. regulators show similar flexibility. See Section III of this white paper.
- **It is important that policy makers understand and study the impact of the Basel III liquidity framework on end-users – that is, bank customers.** The Liquidity Study analyzes five products that will be affected through price, structure or availability for customers. See Section IV.A of this white paper.
- **Prescriptive arithmetic liquidity ratios are not, taken alone, a sufficient response to the need for more robust liquidity risk management.** We strongly endorse the on-going efforts of banks, with the assistance of their regulators, to enhance their liquidity risk management practices. Formulaic ratios are just one tool and, inevitably, have deficiencies. In Section V, we describe our member banks' enhanced practices in this area.
- **Research addressing the assumptions underlying the Basel III liquidity framework is limited and inconclusive.** While economists at the Bank for International Settlements (BIS) have been unable to confidently qualify the impact of the liquidity rules, the BCBS has prescribed these rules using assumptions of uncertain validity. Academic and regulatory research makes it clear that even the Basel Committee and the BIS have significant qualms about the assumptions on which these rules are premised. See Section VI.C of this white paper.

Finally, we have also addressed in this white paper certain other problematic policy and market consequences of the framework's implementation (Section IV) and certain other qualitative considerations that bear upon the implementation of the Basel III framework (Section VI).

B. Recommendations

The Basel III liquidity framework is a work in progress that in many respects reflects substantial improvements in liquidity risk management and supervision but also has significant deficiencies. The framework itself, as initially released in December 2010, recognizes the work-in-progress aspect by providing for observation periods during which banks will report to supervisors but not be subject to the LCR or NSFR as binding constraints.⁶ The Liquidity Study and the related discussions in this white paper point to the major deficiencies in the LCR in its current form, at least as applied to U.S. banks, and frame our recommendations, as follows:

⁶ The observation period for the LCR runs through mid-2013, with the LCR to be introduced on January 1, 2015. The observation period for the NSFR runs through mid-2016, with the NSFR to be introduced as a minimum standard by January 1, 2018. The Basel III final framework recites that the BCBS "is prepared to make revisions to specific components of the standards if this proves necessary in light of the analyses conducted and the data collected during the observation period." *BCBS, Basel III liquidity framework, supra* note 2, at ¶197.

- **Reconciliation of consistent application across jurisdictions and recognition of unique national circumstances:** it is essential that final rules result in consistent application across jurisdictions in order to ensure a level playing field from a competitive perspective. Consistent application does not, however, require identical rules. At least pending refinement of the LCR through the observation period to better adapt to unique national circumstances, it is extremely important that the U.S. regulators show the same flexibility that regulators in other countries are showing. In order to ensure consistent application across jurisdictions, we believe that national regulators should expand the review process contemplated for a number of aspects of the Basel III liquidity and capital frameworks to ensure that deviations from “base” Basel III liquidity rules do not detract from the rigor and cross-border substantive equivalence of the Basel III liquidity rules but instead are justified based on the circumstances of particular countries.
- **Adjustments to reflect U.S. national circumstances:** four adjustments to the LCR should be made by U.S. regulators to reflect U.S. experience and circumstances – both worst case/worst period experience during the financial crisis and the operations of U.S. markets (including how they finance mortgage originations). These changes should be made at inception – that is, before the observation period begins. They are:

 - The Basel III liquidity framework’s run-off factors for non-operational deposits (75% for non-financial institution deposits and 100% for financial institution deposits) should be adjusted to percentages that are closer to U.S. banks’ worst case/worst period experience during the financial crisis (41% for non-financial institution non-operation deposits and 38% for financial institution non-operational deposits).
 - The Basel III liquidity framework’s assumption that the draw-down rate on liquidity lines will be fully drawn (that is, a 100% draw-down rate) should be modified to reflect an assumed draw-down rate that is closer to U.S. banks’ worst case/worst period experience during the financial crisis (which was in the 9% to 10% range depending on the type of facility backed by the liquidity line).
 - Fannie Mae and Freddie Mac mortgage-backed securities (MBS) and debt securities should be recognized as L1 assets with no haircut. Agency MBS and debt securities proved to have better or more sustained convertibility during the financial crisis than many sovereign debt securities, with U.S. Treasury securities and Japanese Government Bonds (JGBs) being the only securities with deeper markets.
 - The FHLB system is unique to the United States. It proved itself to be a reliable source of liquidity for U.S. banks throughout the financial crisis. As discussed in Section II.C of this white paper, we urge the U.S. regulators and the FHLBs to discuss improvements to the FHLB advance system that may address concerns regulators have expressed – for example, as to the appropriateness of giving liquidity credit for over-night advance facilities. Broadly stated, however, we strongly believe that the LCR should recognize committed FHLB facilities as a source of liquidity.
- **Research and process:** there has been a relative dearth of research focused either on the assumptions on which the Basel III liquidity framework’s rules are based or the macroprudential

and macroeconomic effects of enhanced liquidity-risk standards as compared to the attention that has been given to the assumptions and effects of enhanced core capital requirements. This is true with respect to both research generated by the regulatory community and the academic community. The Clearing House has attempted to address for U.S. banks one piece of this in the Liquidity Study – namely, key assumptions underlying the LCR’s calibrations. We urge policymakers at all levels – legislative as well as regulatory – to acquire sound research and analysis addressing in particular macroprudential and macroeconomic effects of the Basel III liquidity framework along with other reforms that effect those considerations. We are particularly concerned with the negative consequences of the LCR and other reforms, considered together, for the U.S. housing market and the potential distortions they may introduce into global markets, including the markets for sovereign debt.

* * *

Although regulators who review this white paper will be well versed in the details of the Basel III framework and supervisory approaches to liquidity risk management more generally, other policymakers may not. We have included as an Appendix to this white paper a background section describing the Basel III liquidity framework and other supervisory initiatives.

I. QUANTITATIVE ASSESSMENT OF THE LCR – THE SHORTFALL

A critical element in evaluating any rule is a quantitative assessment of its impact if implemented. The Basel Committee provided an initial quantitative impact study (QIS) of the Basel III liquidity rules when they were released in December 2010,⁷ using bank data as of December 2009. The Basel Committee's QIS made separate calculations for "Group 1 banks", which is defined as 94 banks that have Tier 1 capital in excess of €3 billion, are well diversified and internationally active, and "Group 2 banks", which is defined as all other banks for which data were gathered. The Basel Committee's QIS study was not, of course, limited to U.S. banks. It showed an average LCR of 83% for Group 1 banks and 98% for Group 2 banks, respectively, as of December 2009, with an aggregate liquid asset shortfall for all banks in the sample (that is, Group 1 and Group 2 banks) of €1.73 trillion. Although the QIS is conducted on an ongoing, semi-annual basis, with a more recent exercise including bank data submitted as of December 2010, the Basel Committee's conclusions from this exercise have yet to be publicly released.

The Clearing House prepared the Liquidity Study in an effort to itself quantitatively assess the impact of the LCR on U.S. banks if implemented. The Liquidity Study analyzes the LCR's impact both as of December 2009 and as of December 2010.⁸ The data were compiled based on the template issued by the Basel Committee in mid-2011 for its ongoing QIS, incorporating results into the revised framework that include changes in the calculation of the cap on L2 assets.

Assuming that the impact conclusions in the BCBS QIS (albeit not broken out separately for banks by jurisdictions) are generally consistent across jurisdictions, the Liquidity Study shows that the Basel Committee's QIS results substantially understate the likely LCR shortfall across the banking industry at December 2009. It also shows that the shortfall largely results from a handful of assumptions embedded in the LCR's calibrations that are extremely conservative as compared to U.S. banks' worst case/worst period experience during the financial crisis. Moreover, the Liquidity Study shows that, for U.S. banks, the shortfall increased between December 2009 and December 2010, notwithstanding that U.S. banks had substantially higher levels of liquid assets and had taken meaningful steps to reduce net cash outflows between those two dates. Specifically:

- The Liquidity Study shows for U.S. banks:

⁷ BCBS, *Results of the comprehensive quantitative impact study* (Dec. 16, 2010) available at <http://www.bis.org/publ/bcbs186.pdf>. The Basel Committee's QIS sets forth an estimated aggregate LCR shortfall for the 263 banks in the study, expressed in Euro, and an average LCR as of December 2009 for the two groups of banks in the study. It does not, however, provide any of the underlying data and analysis supporting that information.

⁸ The December 2009 analysis is based on data as of that date from ten existing banks, representing 54% of U.S. banking assets (\$8.8 trillion). The December 2010 analysis is based on data from 14 existing banks, representing 58% of U.S. banking assets (\$9.4 trillion). The data were compiled based on the template issued by the Basel Committee in mid-2011 for its ongoing QIS, incorporating results into the revised framework that include changes in the calculation of the cap on L2 assets. Except as otherwise indicated, financial and statistical data included in this white paper either appear in or were derived from information in the Liquidity Study or were developed in connection with the preparation of the Liquidity Study.

- as of December 2009, an industry-wide LCR of 70%, which means a liquid asset shortfall of approximately \$1.1 trillion; and
- as of December 2010, an industry-wide LCR of 60%, which means an LCR shortfall of approximately \$1.4 trillion.
- The approximately \$1.4 trillion shortfall at December 2010 is actually understated. The total practical shortfall as determined using the December 2010 data may be as high as \$2.0 trillion. There are two reasons for the difference:
 - Banks will not manage to or target a 100% LCR. In order to avoid regulatory criticism and sanctions, as well as market penalties, that could result from having an LCR less than the minimum regulatory requirement (that is, 100%), banks inevitably will manage to a targeted LCR that includes a “cushion” above the 100% minimum – for example, manage to a targeted ratio of 110% (with a ratio of 110% adding another approximately \$200 billion to the shortfall).
 - Banks’ balance sheet composition at December 2010 was abnormal. Due to ongoing financial market instability, banks have stockpiled L1 and L2 assets, holding historically high levels of cash and U.S. Treasuries, while credit demand remains subdued. Under normal market conditions, banks would not generally hold these assets in such large volumes. As demand for loans picks up, banks would normally decrease cash and other low-yielding liquid funding sources and substitute loans for liquid assets, exacerbating the LCR’s adverse implications and worsening the unintended consequences of the LCR, which are discussed in Section VI of this white paper. As market conditions normalize, the shortfall could rise by an additional \$400 billion if banks re-balanced their asset composition to pre-crisis proportions.
- The increase in the LCR shortfall between December 2009 and December 2010, notwithstanding the fact that banks have moved their asset compositions to historically high levels of cash and U.S. Treasuries, as discussed further below, highlights the flaws in the LCR and the need to reconsider certain of its provisions. The most important contributor to this counterintuitive (and, we believe, manifestly wrong) result for U.S. banks is the interplay between (i) the treatment of MBS guaranteed by Fannie Mae and Freddie Mac, as well as Fannie Mae and Freddie Mac debentures as L2 instead of L1 liquid assets and (ii) the requirement, which was a change in the LCR methodology after the Basel Committee’s initial QIS analysis⁹ that LCR calculations be based upon an assumed unwind of repos on those assets.
- As to outflows, the liquid asset shortfall is driven primarily by products where a large discrepancy exists between current bank assumptions and those on which the LCR is premised. However, as discussed in the Liquidity Study, there are significant empirical discrepancies between actual market performance under even acute stress and the LCR’s assumptions. Thus, it cannot be concluded that banks in this QIS are in fact at such risk that \$1.4 trillion, or even more, in additional liquid assets is warranted.

⁹ BCBS, *Basel III framework for liquidity frequently asked questions* (July 5, 2011) available at <http://www.bis.org/publ/bcbs199.pdf>.

The drop in the LCR year-over-year demonstrates the deficiencies in the LCR as presented in the Basel III liquidity framework because, parallel to the drop in the LCR, the banks in the sample used for this study in fact dramatically increased their holdings of liquid assets and improved net outflows, and are thus considerably more liquid.

- *Improvements in the Stock of Liquid Assets.* L1 and L2 assets increased, improving the industry LCR by 9% and 10%, respectively, between 2009 and 2010. Additionally, the percent of central bank reserve cash to total assets for the U.S. industry has dramatically increased since 2009. As of the first quarter of 2009, cash holdings to total assets were just above 5% but increased to over 7% in 2010, and shot up significantly to approximately 10% in the first quarter of 2011. The ratio of Treasuries held by banks to total assets followed a similar trajectory. The ratio was approximately 5% as of the first quarter of 2009, increased to around 6% throughout 2010, and shot up to 8.8% in the first quarter of 2011.
- *Improvements in Cash Flow.* An increase of cash inflows and secured funding improved the U.S. industry LCR by 6% and 5%, respectively, between 2009 and 2010. Further, compared to the fourth quarter of 2007, banks in the first quarter of 2011 have increased both deposits and Tier 1 common equity by 19%. Conversely, less stable funding sources, such as repos and debt, declined by 35% and 18%, respectively, since 2007. Finally, the percent of wholesale funding with tenor less than 30 days has decreased from 21.8% in 2007 to 6.1% in 2011, which has also contributed to reduced LCR outflows.

Banks in the Liquidity Study have indicated that, if the LCR is implemented as finalized in 2010, they will need to make fundamental adjustments, impacting both customers and key financial markets (including those for U.S. Treasury securities and agency mortgage-backed securities). These actions include exchanging L2 assets for L1 assets and issuing more debt in order to hold more L1 assets, a move that would put banks at other risks (e.g., interest rate risk) and adversely affect credit availability, because proceeds of these new debt issues would need to be diverted to large holdings of sovereign obligations and similar assets, not the less liquid assets that meet market and macroeconomic needs. Banks will decrease the liquidity lines they make available for customers, reduce non-operational deposits and/or curtail other short-term funding sources. The discussion of the product and market impacts provided in Section IV.A. addresses these actions, making clear that, while several may have beneficial liquidity results, they pose significant problems for customers in affected market segments.

II. EMPIRICAL EVIDENCE SUGGESTS MODIFICATIONS TO THE BASEL III STANDARDS

The Basel III liquidity framework specifies that the LCR

“aims to ensure that a bank maintains an adequate level of unencumbered, high-quality liquid assets that can be converted into cash to meet its liquidity needs for a 30 calendar day time horizon under a significantly severe stress scenario specified by supervisors.”

The highlighted phrase lends itself to nuanced interpretations, but the nuances – and different outcomes that can flow from them – are critical. For example, are the rules based on failed banks or stressed banks? If the standards are designed to ensure that no bank ever fails due to liquidity risk, then they will establish so high a liquidity-risk threshold that few, if any, banks could operate under them as efficient providers of credit intermediation services because the cost of matching all potential claims (e.g., on lines of credit) would be prohibitive. In contrast, if the rules are designed to ensure that banks (i) are able to absorb liquidity stress even in system-wide stress scenarios and (ii) reflect in the pricing of their products the costs of that amount of liquidity, so that in most cases regulators can exercise discretion as to when and how to intervene as opposed to feeling compelled to intervene because the consequences of non-intervention are so severe, that goal is laudable and regulatory standards to achieve it are appropriate.

We have discussed below aspects of the LCR that concern us because they tend to support a “no bank ever fails due to liquidity risk” goal as opposed to goals oriented toward reflecting true liquidity costs in the pricing of products and preserving flexibility for regulators and governments more generally in times of stress. A robust banking system, and prudential standards designed to achieve it, should not be premised on government intervention as the solution, even in scenarios that are highly stressed. However, neither should such a system be premised on a “no bank ever fails due to liquidity risk” goal. Achieving the correct balance between goals, on the one hand, and calibrations, on the other hand, requires a transparent and empirical analysis of liquidity metrics (whether the convertibility of a particular class of assets or an analysis of cash inflows and outflows that produce a realistic measure of net cash outflows).

Our empirical focus has been on U.S. banks and the U.S. market, largely because of resource constraints. If the BCBS and other policy makers are concerned that U.S. experience is not representative of international experience, we encourage them to replicate our analysis in other jurisdictions.

A. Basel III Assumptions About Liquid Assets; Convertibility of Agency Securities

The Basel III rules are based on the Basel III liquidity framework’s definition of “liquid assets” for LCR purposes – i.e., assets that can be converted into cash during the time periods specified in the LCR, even during a period of system-wide stress. However, this critical definition in the Basel III rules is based on incorrect assumptions not supported by the actual liquidity of varying asset classes in the marketplace.¹⁰

¹⁰ The enhanced practices for liquidity risk management outlined in Section V of this paper are intended to provide a consistent framework for assessing liquid assets, which should be based not solely on the issuer – as is done in the Basel III rules – but importantly on how readily a bank can convert an asset into cash under stress.

The data presented in this Section II.A assess assets based on what makes them in fact readily convertible: the ability to transact in large size with only minimal loss under stress. Measures of the liquidity of an asset class are varied, but key ones include daily volume traded, traded bid-ask spreads (which factor in volatility and indicate market depth), the size of a market, and the existence of an active and robust “repo” market. Although the Basel Committee has provided composite assessments of the impact of the liquidity standards,¹¹ it has not provided the empirical analysis on which the LCR and NSFR are premised. It is essential that it do so because, absent transparent analytics on which to assess the LCR’s calibrations, critical assumptions underlying the rules are unknown and, thus, their policy impact remains at best uncertain.

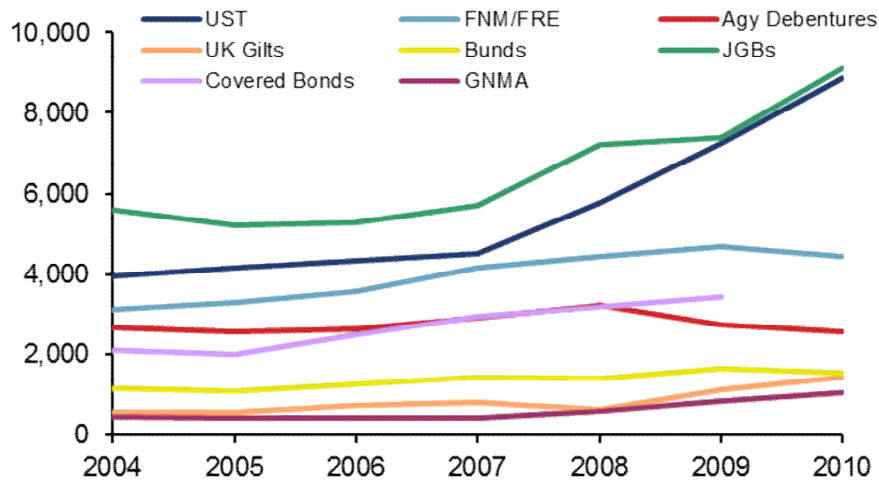
The charts below compare liquidity characteristics of various asset classes, including both those proposed as L1 and those not granted favorable L1 status. With regard to the U.S. market, these include securities issued or guaranteed by U.S. government sponsored agencies,¹² particularly mortgage-backed securities (MBS) issued by Fannie Mae and Freddie Mac (agencies) (agency MBS) and debt securities issued by the agencies, that have not been granted L1 status despite exhibiting superior liquidity characteristics. Data on some of the convertibility criteria are proprietary (e.g. bid offer spreads), but the charts below demonstrate the depth and transparency of the agency MBS markets as compared to other L1 and L2 assets. For example, outside of U.S. Treasuries and JGBs, the agency MBS market is the next largest in terms of outstanding notional values, with outstanding Fannie Mae and Freddie Mac securities at approximately \$4.5 trillion and Ginnie Mae securities around \$1 trillion in 2010.¹³

¹¹ BCBS, *QIS*, *supra* note 7.

¹² For purposes of these charts, unless otherwise noted or broken out, “agency debentures” include debt securities issued by Fannie Mae, Freddie Mac, Farmer Mac, the Federal Home Loan Banks, the Farm Credit Banks and federal budget agencies (for example, the Tennessee Valley Authority), and “agency MBS” include mortgage-backed securities issued or guaranteed by Fannie Mae, Freddie Mac or Ginnie Mae.

¹³ See *infra* note 45.

Total Securities Amount Outstanding End of Year (USD \$bn equivalent¹⁴)

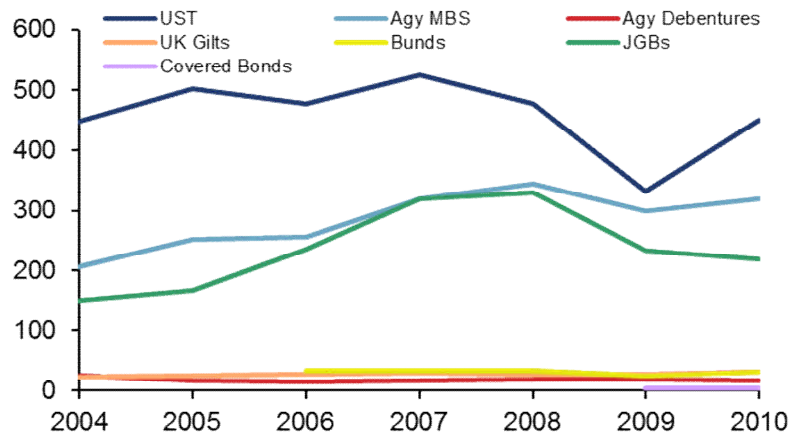


Additionally, Fannie Mae and Freddie Mac MBS market depth and convertibility to cash are readily apparent when considering daily trading volume and ability to repo as measures of liquidity. As demonstrated below, the annual daily trading volume of agency MBS since 2004 has been second only to U.S. Treasuries.¹⁵

¹⁴ U.S. dollar (USD) equivalents for the following charts are calculated using then current foreign exchange rates.

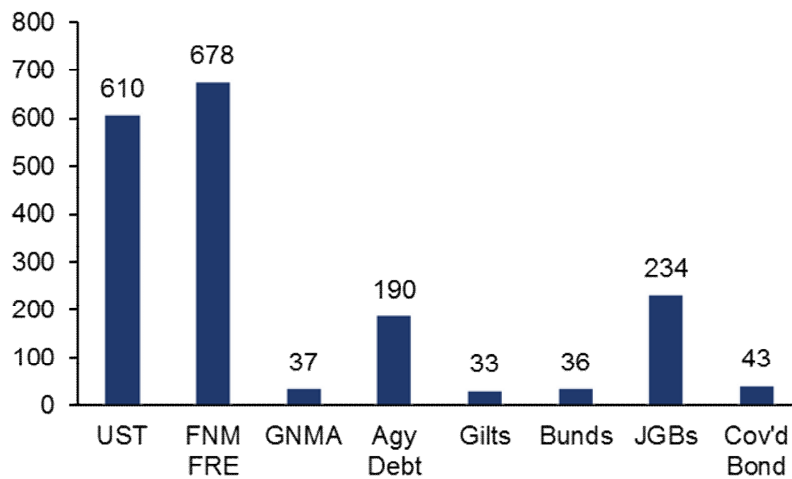
¹⁵ Sources: SIFMA, UK DMO, Federal Republic of Germany Finance Agency, JSDA.

Daily Trading Volume (USD \$bn equivalent - excludes Bills except as indicated)



Finally, as shown below, the estimated daily repo volume of Fannie Mae and Freddie Mac MBS is on par with that of U.S. Treasuries and is larger than any other asset class, which demonstrates the ability to easily liquidate these assets via the repo markets.¹⁶

Daily Repo Volume (USD \$bn equivalent)



¹⁶ *Id.*

B. Calibrations In Some Areas Are More Conservative Than U.S. Banks' Worst Case/Worst Period Experience

The Liquidity Study focused on the Basel III liquidity framework's calibrations – that is, the required assumed run-off rates for deposits and other liabilities and drawdown rates for credit and liquidity facilities.¹⁷ The data made available by the banks participating in the Liquidity Study generally was on a monthly basis from August 2008 through March 2009.

In comparing run-off rates and drawdown rates of banks participating in the Liquidity Study to the Basel III requirements, the study uses the worst case data point – that is, (i) with respect to run-off rates as to a particular type of deposit, the highest run-off rate for any bank in the sample in any month during the period covered by the study and (ii) for drawdown rates as to a particular type of facility, the highest drawdown rate for any bank in the sample in any month during the period covered by the study (referred to in this white paper as the “worst-case/worst-period” result). The study included data from four banks that failed or effectively failed – Wachovia, Washington Mutual, National City and Colonial.

The Liquidity Study shows that in some areas (run-off rates for retail deposits and credit lines to corporate customers) the Basel III assumptions are generally reflective of worst-case/worst-period experience. But it also shows that in other areas, the Basel III requirements are extremely conservative and not remotely reflective of U.S. experience. The primary examples in this regard are the run-off factors for non-operational wholesale deposits (where the worst-case/worst period maximum run-off rates were 38-41%, depending on the type of deposit, compared to required assumed run-off rates of 75-100%) and drawdown rates on liquidity lines to nonfinancial and financial customers (where the worst-case/worst-period drawdowns during the crisis were 9-10% compared to the LCR's assumed 100%).

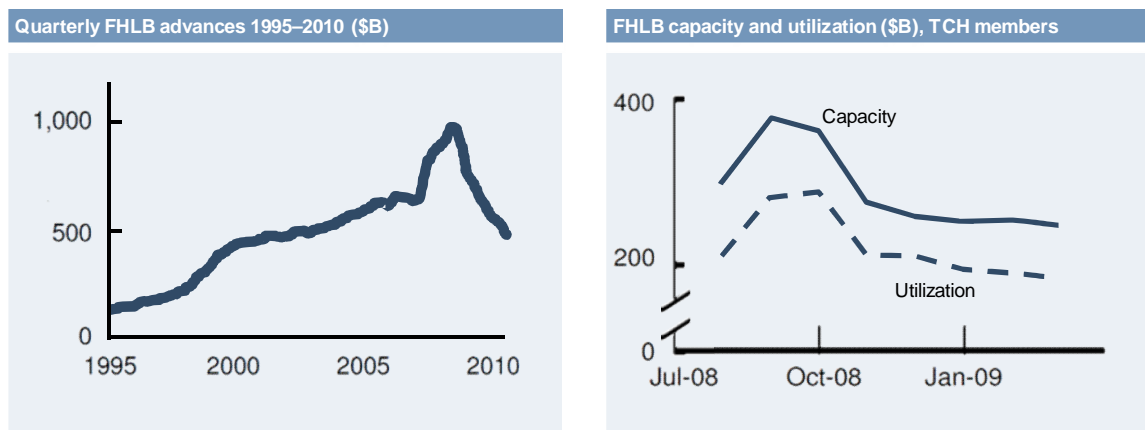
The Liquidity Study's comparison of the LCR's calibrations to U.S. experience are set forth at pages 16 to 20 and 24 to 27 of the study, with the data concerning the areas where there is the greatest divergence – non-operational wholesale deposits and drawdown rates on liquidity lines to non-financial and financial customers – appearing at pages 19 to 20 and 27. We share the regulatory community's view that an area for further inquiry suggested by these results is an analysis of the consequences for end users (that is, customers). We have made some efforts in that regard, addressed at pages 40 to 46 of the Liquidity Study and discussed further in Section IV.A, below. However, evaluating end user consequences (for example, potentially higher fees or interest rates for some products and reduced availability for others) presents a number of challenges. These include the complexities (and perhaps even impossibility) of conducting a dynamic evaluation that takes into account alternative products, as compared to the analysis in the Liquidity Study which was conducted on a static basis, and the uncertainties in predicting real-life customer behavior in response to future events. We do not think regulators should be accepting of incorrect calibrations merely because the consequences are uncertain or cannot be proven *ex ante*. Instead, we strongly believe that sound regulation requires a clear statement of the goal (see the introduction of this Section II) and calibrations based on empirical analysis that can reasonably be expected to implement that goal (without a bias to either excessive conservatism or excessive leniency).

¹⁷ See *supra* note 8 concerning the banks that participated in the Liquidity Study.

C. Federal Home Loan Bank Advances

It is both important and appropriate in implementing the LCR that national regulators take into account circumstances unique to their countries where empirical data supports adjustment for those circumstances, as noted in the Introduction and discussed further in Section III. In the United States, the most important unique circumstance insofar as the LCR is concerned is the Federal Home Loan Bank System (FHLB System).

As demonstrated by the charts below, the FHLB continued to provide liquidity that banks could draw upon during the crisis, in addition to other markets that maintained liquidity.



- FHLB continued to provide liquidity even during the crisis

- Capacity and utilization increased during the crisis while excess capacity remained relatively constant

Source: Fed Flow of Funds; The Clearing House LLC member banks' supplemental data

Established by law in 1932,¹⁸ FHLBs provide “advances” – that is, loans collateralized by eligible mortgages and other assets – to support residential-mortgage finance by member institutions. Members – now more than 8,000 for the FHLB System as a whole¹⁹ – are large and small banking organizations, as well as certain other eligible firms.

The FHLB System increased its lending to members in every part of the country by over 50% – or \$300 billion – between the second quarter of 2007 and the third quarter of 2008.²⁰

¹⁸ Federal Home Loan Bank Act of 1932, Pub. L. 72-304, 12 U.S.C. §§ 1421-1449.

¹⁹ The Federal Home Loan Banks, *FHLBanks White Paper*, available at <http://www.fhlbanks.com/assets/pdfs/sidebar/FHLBanksWhitePaper.pdf>.

²⁰ *Id.* at 3.

Some in the official sector have expressed concern that the FHLB role does not warrant recognition because the FHLBs pose taxpayer risk. However, a taxpayer subsidy would only occur in the event the FHLB System incurred a loss. Levels of protection exist to make this highly unlikely because:

- the Banks are 100% privately capitalized with member stock and retained earnings;²¹
- joint and several liability within the FHLB System protects individual district FHLBs;²²
- FHLB haircuts on the collateral that must back all advances are conservative, generally ranging from 25% to 50%;
- no FHLB has experienced a credit loss on advances;²³ and
- none of the FHLBs required government assistance during the financial crisis.

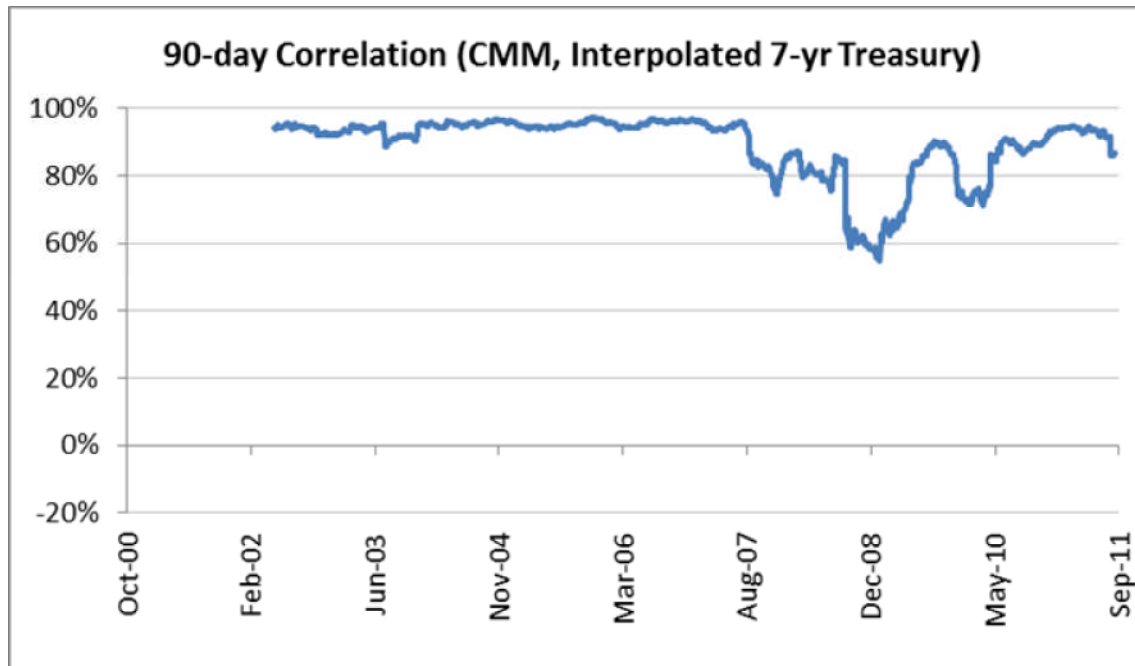
FHLB advances may be provided on an overnight or a term basis. The U.S. banking agencies have expressed concern as to whether a bank's ability to borrow on an over-night basis from an FHLB should be recognized for LCR purposes in either the numerator or denominator, given that over-night borrowings would be negated by the obligation to repay within 30 days were the funds actually drawn down. The treatment for LCR purposes of overnight FHLB facilities requires further consideration. The FHLBs, in discussion, with The Clearing House, have indicated an openness to potentially revising facility terms in order to address the U.S. banking agencies' concerns.

FHLB advances are a critically important liquidity source for U.S. banks, demonstrably available to U.S. banks throughout the financial crisis. The LCR as formulated in the Basel III liquidity framework does not recognize the liquidity value of banks' undrawn FHLB commitments, either as a "liquid asset" in the LCR's numerator or a cash inflow in the LCR's denominator. Subject to the open questions with respect to over-night FHLB advances discussed in the preceding paragraph, we believe it should.

²¹ *Id.*

²² Moody's Investors Service, *Credit Opinion: Federal Home Loan Banks* (Aug. 5, 2011), available at http://www.fhlb-of.com/ofweb_userWeb/resources/MoodysCreditAnalysis080511.pdf.

²³ *Id.* at 3.



D. Case History Suggests the Evidence is Unreliable

Wachovia Corporation (Wachovia) was the largest U.S. bank or thrift holding company to fail – that is, either file for bankruptcy or, in order to avoid a bankruptcy filing, be acquired by a more healthy bank holding company (Wells Fargo & Company (Wells Fargo) in the case of Wachovia) – during the financial crisis. An examination of Wachovia’s actual experience with respect to

- its ability to borrow in the repo market against agency MBS and debentures,
- draw-down experience on liquidity facilities, and
- run-off experience with respect to wholesale deposits

demonstrates the extreme conservatism of the assumptions underlying the LCR’s calibrations. The Wachovia experience also highlights the impact of important material differences in deposit insurance schemes on run-off rates for insured deposits.

Wachovia was a typical commercial bank with an equal mix of commercial and retail activities, but was a very troubled institution throughout much of 2008.²⁴ After the bankruptcy of Lehman Brothers on September 15, 2008, Wachovia came under severe liquidity pressure. On October 3, 2008, at a point when Wachovia was liquid, Wachovia agreed to be acquired by Wells Fargo. Wells Fargo provided liquidity support that day to ensure Wachovia’s balance at the Federal Reserve was greater than zero.

²⁴ See, e.g., David Milenberg, *Wachovia Has Record \$8.9 Billion Loss, Cuts Dividend* (July 22, 2008), available at <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a3cStztOg8pk>.

1. Wachovia Bank, National Association Repo by Collateral Type

Wachovia's balance sheet performance at this time demonstrates that, even for a failed bank, the Basel III LCR calibrations are incorrect. For example, repos of L1 and L2 assets provided significant liquidity for Wachovia at the height of its crisis. Wachovia raised funds in September 2008 during its period of most severe stress through repo funding of Treasuries, agency debentures and agency MBS. The chart below shows that repo funding continued into October at declining balances due to the availability of other sources.²⁵

2. Credit and Liquidity Facility Draw Assumptions

Similarly, Wachovia's actual crisis experience for credit facility draws, in addition to corporate and financial institution deposit run-offs, suggest the LCR factors are either significantly mis-calibrated or do not reflect differences in national banking practices. As can be seen in the charts below, the Basel III factors provide for dramatically more severe conditions than the actual Wachovia experience.

(\$ billions)		<u>8/31/2008</u>	9/30/2008	<u>10/31/2008</u>	30 Day Change in Utilization	Basel Factor	Basel Factor vs Experience
Non-Financial							
Corporate Draws -	Commitments	\$ 358.3	\$ 350.8	\$ 349.0			
	Outstandings	193.6	198.6	201.0			
	Utilization	54.0%	56.6%	57.6%	1.0%	10.0%	10.1 x
Retail Draws -	Commitments	\$ 85.7	\$ 84.8	\$ 83.9			
	Outstandings	29.0	29.3	29.7			
	Utilization	33.8%	34.6%	35.4%	0.8%	5.0%	6.2 x

Additionally, the worst liquidity line drawdowns were well below LCR factors. Liquidity lines to financials and non-financials experienced 9% and 10% maximum drawdowns, respectively, during the crisis, while the LCR provides for 100% draws for both.

²⁵ Wachovia historical data is provided by Wells Fargo.

3. Corporate and Financial Institution Deposit Experience

<i>(\$ billions)</i>	<u>9/15/2008</u>	<u>10/15/2008</u>	<u>% change</u>	<u>Basel Factor</u>	<u>Basel Factor vs Experience</u>
<u>Operational Deposits</u>					
Non-Financial	\$ 31.0	\$ 27.1	-12.5%	-25.0%	2.0 x
Financial	3.2	2.9	-8.0%	-25.0%	3.1 x
<u>Non-Operational Deposits</u>					
Non-Financial	33.6	25.0	-25.4%	-75.0%	2.9 x
Financial	6.4	3.7	-42.4%	-100.0%	2.4 x
Total	\$ 74.1	\$ 58.7	-20.7%	-54.1%	2.6 x

Wachovia's experience was not unique. Indeed, analysis of broader industry crisis data similarly supports recalibrating the LCR, especially for non-operational deposits and liquidity lines. For example, financial institution non-operational deposits experienced a maximum outflow rate of 38% during the crisis, but the implied LCR outflow rate is 100%. Similarly, non-operational deposits for non-financial corporates saw a 41% outflow in 2008, but the LCR implied outflow is 75%.

4. Deposit Insurance

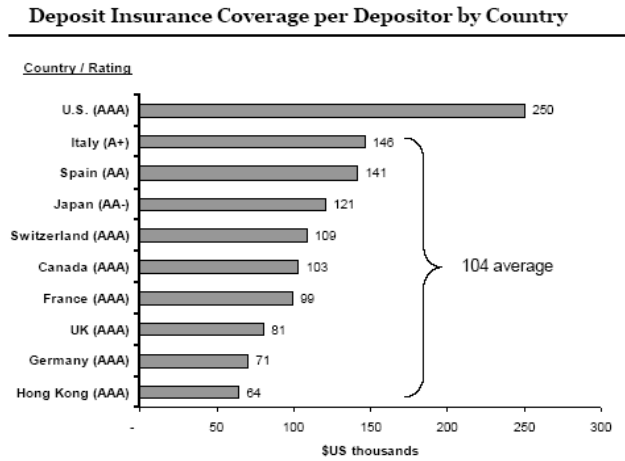
The Basel III liquidity framework should allow national discretion in determining retail and small and medium-size enterprise (SME) deposit LCR run-off factors to recognize important national differences in deposit insurance schemes. The factors should be based upon not only the presence of deposit insurance, but also the level of coverage and the strength of the guarantor. The data below from a failed institution, Wachovia, demonstrates a marked difference in run-off rates between insured and uninsured deposits. As the chart demonstrates, the insured deposits run-rates are essentially nil, while the uninsured deposit run rates are multiples of the Basel III factors.

LCR Factors for Retail and SME Deposits are Several Times Actual Experience

Further, the use of an "average" rate under the Basel III proposals is not appropriate because it fails to recognize the strong national deposit insurance scheme present in the U.S. The chart below shows the U.S. has on average more than double the amount of deposit insurance per customer than other large

countries.²⁶ It is important to note that banks are already paying for this insurance and that holding excessive amounts of liquid assets adds an additional cost.

Deposit Insurance Coverage per Depositor by Country



²⁶ *Deposit Insurance Coverage per Depositor by Country*, McKinsey research based on FDIC and World Bank data.

III. THE COMPETITIVE LANDSCAPE

The Basel III rules are intended as a global framework for all member nations.²⁷ It is important, therefore, to consider the Basel III rules not just in their own light and in the context of pending U.S. regulatory actions to craft a meaningful domestic liquidity-risk regulatory regime (see Section C of Appendix 2), but also in light of whether other BCBS member nations in fact implement Basel III as finalized. If only the U.S. implements Basel III as prescribed in the final standards released by the Basel Committee, the U.S. not only would be adhering to rules that do not appropriately reflect U.S. crisis experience and market functions, but it would also place U.S. banks at undue risk because other nations will permit banks that compete with U.S. banks or are their counterparties to take liquidity risk that could be captured through meaningful compliance and robust enhanced practices.

It is essential that final rules result in consistent application across jurisdictions in order to ensure a level playing field from a competitive perspective. Consistent application does not, however, require identical rules – for example, disregard of a liquidity source that is unique to a particular country (in the United States, most importantly, agency MBS and debentures and FHLB advances) or that calibrations of run-off factors and assumed draw-down rates on credit and liquidity facilities be identical notwithstanding that experience may differ country-by-country, depending upon the circumstances in particular countries (in the United States, most importantly, non-operational wholesale deposits and liquidity facilities). At least pending refinement of the LCR through the observation period to better adapt to unique national circumstances, it is extremely important that the U.S. regulators show the same flexibility that regulators in other countries are showing. In order to ensure consistent application across jurisdictions, we believe that national regulators should expand the peer review process contemplated for a number of aspects of the Basel III liquidity and capital frameworks to ensure that deviations from “base” Basel III liquidity rules do not detract from the rigor and cross-border substantive equivalence of the Basel III liquidity rules but instead are justified based on the circumstances of particular countries.

A. European Union

The European Commission (EC) finalized Capital Requirements Directive IV (CRD IV)²⁸ and presented it to the European Parliament for final action in July 2011. A framework for implementing the Basel III liquidity standards is among a panoply of regulatory provisions included in CRD IV. CRD IV potentially permits a looser definition of eligible liquid assets under the LCR and does not commit to implementation of the NSFR. For example, while Basel provides the prescriptive definition of L1 and L2 assets as outlined in Section B.1 of the attached appendix, CRD IV allows a broad definition of liquid assets that includes “transferable assets that are of extremely high liquidity and credit quality” and

²⁷ BCBS members come from: Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

²⁸ Press Release, European Commission, *Commission wants stronger and more responsible banks in Europe* (July 20, 2011), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/915&format=HTML&aged=0&language=EN&guiLanguage=en>.

"transferable assets that are of high liquidity and credit quality."²⁹ Although the directive includes various suggestions as to ratios the European Banking Authority (EBA) should consider in assessing a bank's liquidity over a thirty-day horizon, the directive requires only that a bank demonstrate its resilience, not that it actually meet the LCR as prescribed by the Basel Committee. Additionally, the EC will only "consider proposing an NSFR after an observation and review period in 2018."³⁰

EU legislative deliberations will likely take place through the end of 2011 and could potentially reshape the liquidity rules mandated in CRD IV. National guidelines will follow this and are expected to be released in 2012 in order to satisfy the Basel deadline of January 1, 2013 implementation.

B. Asia

Asian nations are similarly working towards implementation of the Basel liquidity standards, but are encountering challenges, such as a significant shortage of eligible liquid assets that qualify under the LCR. Specifically, in countries such as Australia, Hong Kong and Singapore, there is a limited supply of government securities, which constitute L1 assets, and non-bank corporate debt, which qualify as L2 assets.³¹ These nations are currently considering a number of options on how to address this problem. For example, the Reserve Bank of Australia plans to establish a government liquidity facility which will cover LCR shortfalls in exchange for a market-based fee and qualifying collateral.³² The size of the facility and final rules are under consideration and pending consultation during 2011 and 2012. Notably, establishment of a government facility that is essentially paid by banks for services that facilitate compliance would not appear to meet Basel III's goals of ensuring that banks themselves institute robust liquidity-risk management protocols in conformity with the rule. This raises significant questions both about the degree of real international implementation and the subsequent competitiveness and regulatory-arbitrage implications resulting from approaches such as those under consideration in Australia.

The Hong Kong Monetary Authority (HKMA) is similarly weighing how to address the dearth of qualifying liquid assets, with banks told to adjust portfolios to address an overreliance on bank-issued paper that does not qualify under the LCR, and a current lack of qualifying sovereign, central bank and non-financial

²⁹ European Commission Proposal for a Regulation, *On Prudential Requirements for Credit Institutions and Investment Firms, Part III* (July 20, 2011), at 85, available at http://ec.europa.eu/internal_market/bank/docs/regcapital/CRD4_reform/20110720_regulation_proposal_part3_en.pdf.

³⁰ European Commission Proposal for a Regulation, *On Prudential Requirements for Credit Institutions and Investment Firms, Part I* (July 20, 2011), at 6, available at http://ec.europa.eu/internal_market/bank/docs/regcapital/CRD4_reform/20110720_regulation_proposal_part1_en.pdf.

³¹ Rachel Armstrong, *Basel Liquidity Rules Pose Risks for Asia-Pacific Banks*, Reuters (Mar. 21, 2011) available at <http://www.reuters.com/article/2011/03/21/us-asia-basel-liquidity-idUKTRE72K0SG20110321>.

³² Reserve Bank of Australia, *Australian Implementation of Global Liquidity Standards* (Dec. 17, 2010) available at <http://www.rba.gov.au/media-releases/2010/jmr-10-31.html>.

corporate debt.³³ Again, it is unclear how binding this approach will be, in contrast to the prescriptive ratios adopted by the Basel Committee. The HKMA is discussing options for covering liquidity shortfalls revealed by 2010 and 2011 QIS results, and will prepare draft legislative amendments by the third quarter of 2011, which will be introduced in the 2011-2012 legislative session.³⁴ Similarly, in the wake of the QIS results released in December 2010 that showed South Korean banks were below average global liquidity ratios,³⁵ South Korea established a task force composed of various regulators and academic experts to determine how it should implement the Basel liquidity standards.³⁶

Interestingly, the China Banking Regulatory Commission (CBRC) issued guidance earlier this year stating that the LCR and NSFR will come into effect on January 1, 2012, with only two-year and five-year observation periods, respectively, but banks should meet the ratios by the end of 2013 and 2016, respectively.³⁷ In a follow-up release, the CBRC noted that “quantitative impact measurements show that the majority of domestic banks have already reached or will reach shortly the regulatory requirements on liquidity.”³⁸

³³ Viren Vaghela, *HKMA's Yuen Urges Banks to Take Action Now on Basel III LCR; Warns of Negative Impact for Corporate Debt Markets* (Mar. 29, 2011), available at <http://www.risk.net/asia-risk/news/2038355/hkma-s-yuen-urges-banks-action-basel-iii-lcr-warns-negative-impact-corporate-debt-markets>.

³⁴ HKMA, *Circular – Implementation of Basel III in Hong Kong* (Jan. 16, 2011) available at, http://www.info.gov.hk/hkma/eng/guide/circu_date/20110126e1.pdf.

³⁵ Financial Services Commission and Financial Supervisory Service, *Basel III Quantitative Impact Study and Its Implications* (Dec. 17, 2010), available at www.fsc.go.kr/downManager?bbsid=BBS0048&no=72729.

³⁶ Financial Services Commission, *Financial Services Commission has Launched a Task Force to Follow Up With G20 Agreement* (Mar. 10, 2011), available at <http://fsc.korea.wordpress.com/2011/03/10/financial-services-commission-has-launched-a-task-force-to-follow-up-with-g20-agreement/>.

³⁷ CBRC, *Guiding Opinions on the Implementation of New Regulatory Standards in China's Banking Sector* (Apr. 27, 2011), available at <http://www.lawinfochina.com/NetLaw/display.aspx?db=law&sen=rLdDdW4drhdDdWcdrLd5dWdDrLdGdWPd9DdydWcdrddTdWudrDdTdWEd/DdDdWud/ddTdWud9Dd+&Id=8709&>.

³⁸ CBRC, *The CBRC Respond to Questions of the Press Relating to the Guiding Opinions on the Implementation of New Regulatory Standards in China's Banking Industry* (May 3, 2011) available at <http://www.cbrc.gov.cn/english/home/jsp/docView.jsp?docID=20110613FCE47ABD05FA4204FF5BCBC854991A00>.

IV. POLICY AND MARKET CONSEQUENCES – PROBLEMATIC OR UNKNOWN

In its December 2010 release, the Basel Committee stated that it would review the LCR and NSFR for “unintended consequences” and, if these are found, revise the rule as needed.³⁹ We have highlighted below several areas where the likely consequences of the rules may be unintended and are problematic, or at the least may not be .

A. Market and Customer Implications

In connection with this project, the Liquidity Study analyzed five products (and related markets) that will be affected as a result of the LCR. The Clearing House chose these products for analysis because they are the products directly affected by the areas where the LCR’s calibrations most significantly diverge from U.S. worst case/worst period experience – namely, non-operational wholesale deposits and drawdown rates on liquidity lines to non-financial and financial customers.⁴⁰ The five products are commercial paper (CP) backstops, financial institution liquidity lines, variable rate demand note (VRDN) backstops, corporate non-operational deposits, and financial institution non-operational deposits.

The Liquidity Study shows that, as of December 2010, the amounts of liquidity held by banks used in the sample for the analysis with respect to the five products was roughly in line with the worst case/worst period outflow rates during the financial crisis.⁴¹ The analysis undertaken by The Clearing House attempted to quantify the impacts on these products of implementation of the LCR, as reflected in the Basel III liquidity framework, including the pricing and availability of these products. Because of the constraints imposed by antitrust laws, we are describing in this Section IV.A, and have included with the version of the Liquidity Study that accompanies this white paper, only a general discussion of the methodology used and its results. The Clearing House has presented the more detailed results to the U.S. banking agencies on a confidential basis.

1. Methodology

The Liquidity Study arrived at these conclusions by distributing the impact of the LCR among bank products based on the difference between the LCR runoff factors prescribed in the Basel III rules and internal bank outflow assumptions for each product. As indicated above, the main driver of product selection was based on discrepancies between the LCR runoff factor and the actual experience of banks during the crisis, although other considerations, including market size and constituencies of interest, were also taken into account. To develop a fact-based view of the LCR on banks, products, and markets, a coordinated approach was taken:

³⁹ BCBS, *Basel III*, *supra* note 2, at 2.

⁴⁰ See Section II.B of this white paper.

⁴¹ See page 42 of the Liquidity Study for a comparison of the historical amounts of liquidity held by banks against these products as compared to worst case/worst period outflow rates during the financial crisis and implied LCR calibrations.

- i. internal data on the current economics and cost impact of the LCR was collected across fourteen products and thirteen banks, which account for \$9.2 trillion in assets, representing 57% of total U.S. bank assets;
- ii) twenty-five product managers were interviewed across eleven banks in order to understand the implications for product pricing, structure, and availability in response to increased costs;
- iii) thirteen customers and investors were interviewed to understand the implications of the product impact for their cash-management, financing, and investing activities; and
- iv) ten bank treasurers were interviewed to understand the implications for overall balance sheet management (e.g., overall lending availability).

2. Commercial Paper Backstops

CP is a low-cost, short-term financing instrument used by large corporations, banks, and other financial institutions (e.g., money market funds), with a market size of \$1.1 trillion in the first quarter of 2011. Approximately \$500 billion of outstanding CP requires a liquidity line backstop to qualify as investment grade. Additionally, institutions have historically relied more significantly on CP, with the market size in 2007 at approximately \$2 trillion. From the sample of banks surveyed, the price of CP backstops is expected to rise and its structure may change as well due to the LCR. As noted above, the primary driver of the cost increase is the discrepancy between banks' internal liquidity models, historical outflow rates experienced during the 2008 crisis, and the LCR's implied outflow rate. For example, banks have historically held between three to 16% of liquidity against CP backstops. While this was proved insufficient in some instances, when considering that the maximum outflow rate during the 2008 financial crisis was as high as 10%, the LCR requires a stringent 100% coverage. This substantial discrepancy will lead to dramatic changes in the CP market and will change how current CP customers fund themselves.

3. Financial Institution Liquidity Lines

Financial institution (FI) liquidity lines are used by money market funds, broker-dealers, pension funds, insurance companies, and sellers of assets (e.g., auto finance, credit card companies). Using traditional definitions of FI, the market size of FI liquidity lines is approximately \$350 billion. However, the Basel III liquidity rules are based upon a much broader definition of FIs than is traditionally used in the industry. As a result, additional research likely is needed to understand the aggregate amount of credit and liquidity lines outstanding to firms that may fall within the LCR's broad definition of an FI. Again, the cost of providing these liquidity lines is expected to rise as a result of the LCR implied runoff rate, and the structure of the product may change as well. Historically, banks hold an average of 19% liquidity against these products, which experienced maximum outflows of 9% during the crisis. Nevertheless, the LCR factor again accounts for a 100% drawdown rate.

4. Variable Rate Demand Notes

Variable Rate Demand Notes (VRDNs) are low-cost, long-term financing instruments that are primarily used by municipalities, hospitals, and higher-education institutions to borrow long-term at short-term

rates. The market as of the second quarter of 2011 was approximately \$360 billion, which is down from \$420 billion prior to the financial crisis. The reasons for the decrease in VRDNs cited by banks include the fact that municipalities exited the market and that banks also exited the letter-of-credit (LC), or standby bond purchase agreements (SBPA) markets which provide the backstops necessary to qualify VRDNs as investment grade. Ultimately, the LCR may lead to a decrease in availability and an increase in price for VRDNs. Again the primary reason is the 100% LCR implied outflow rate, compared to 18% historically held by banks and a 10% maximum outflow during the crisis.

5. Non-Operational Deposits

Non-operational deposits are comprised of Money Market Deposit Accounts (MMDAs), term deposits, and a portion of Demand Deposit Accounts (DDAs), estimated to be approximately 15% of the deposit base. There is significant variability across banks in classification of deposits as operational or non-operational – for example, some banks treat sweep accounts as operational, while others consider them non-operational. This complicates analysis in this product category. However, under the Basel categorization, the market stands at approximately \$1.5 trillion. Non-operational deposits also represent approximately 30% of corporate short term cash and 10% of FI short term cash.

Again, the discrepancy between the Basel calibrations and the historical worst case run-off rates will cause price increases for these products. For example, while corporate non-operational deposits experienced a maximum outflow of 41% during the crisis, the LCR implied outflow rate is 75%. Similarly, FI non-operational deposits experienced a 38% maximum runoff in 2008 but the LCR requires 100% coverage.

B. The Impact of New Incentives to Increase Holdings in Sovereign Debt

The Basel III liquidity rules evidence a strong preference for banks to use sovereign securities to meet their LCR requirements. The underlying rationale for this preference would seem to be that sovereign securities that meet certain liquidity benchmarks may be just as good as cash during a stress scenario. The support for this argument is questionable and discounted not only by experiences with sovereign debt during the recent crisis in Europe, but also by a new supervisory study on sovereign credit risk published by the BIS Committee on the Global Financial System (CGFS).⁴² This is discussed further in Section VI.C., where key research related to the liquidity rules is assessed. Here, we focus specifically on the unintended customer and product implications of this reliance.

The LCR rules will lead to a substantially higher demand by banks for sovereign debt. The LCR divides the “stock of liquid assets”, which is the numerator in the ratio, into two categories: L1 (cash, central bank deposits and sovereign securities (0% risk weighting)); and L2 (agency MBS and debt securities, non-financial corporate debt and covered bonds (with a haircut)). To be LCR compliant, banks will need

⁴² BIS, *The Impact of Sovereign Credit Risk on Bank Funding Conditions* (July 11, 2011), available at <http://www.bis.org/publ/cgfs43.pdf>.

to carry a larger proportion of sovereign debt with explicit sovereign backing in their investment portfolios.⁴³

This will force banks' asset concentrations into relatively few asset categories, thus altering the economic appeal of those assets and market dynamics in those asset classes (i.e., potentially creating a shortage of liquid assets). Of course, the more banks concentrate in a few asset classes, the greater the risk to the bank and the financial system. First, a bank will have more capital at risk in a single asset class, thus limiting the prudential resilience that portfolio diversification provides.

Additionally, this asset concentration in sovereign obligations could also exert downward pressure on "risk-free" interest rates, especially at medium- and long-term maturities. In particular, the yields of liquid buffer eligible securities are expected to decline relative to those of non-liquid asset buffer eligible securities, so that yield spreads between them would become wider. These generally form the basis for pricing of both wholesale and consumer credit products, ultimately leading to higher costs of credit.

Further, the LCR liquid asset buffer, as defined, will result in a high degree of correlation across certain types of asset classes among financial institutions. Firms may be forced to take similar actions to reach compliance and, during market stress, this may well result in multiple financial institutions attempting to liquidate the same or similar types of assets (herd mentality) which will cause dislocation in market pricing. During the 2008-2009 credit crisis, many securities regarded as highly liquid in pre-crisis times suddenly became illiquid. What seems liquid today may be less liquid tomorrow (i.e., European sovereigns) or under specific circumstances (i.e., U.S. debt crisis/S&P downgrade). This argues for a wider classification of liquid assets (as outlined below) versus the current narrow definition. As seen with the European sovereign crisis, government securities are not always a consistent source of stability. With a broader spectrum of eligible assets, a financial institution is less likely to experience cliff effects (eligible today, not eligible tomorrow) and volatility.

In addition, LCR calibrations currently bifurcate the market into assets that generally either fully qualify or do not qualify at all, with limited exceptions for L2 assets that qualify but only with haircuts. This kind of bifurcation will significantly change how markets function in the future because today's markets capture the liquidity value within pricing and haircuts. A more diversified approach would mitigate this risk by providing at least some inclusion for a wider array of products based on liquidity characteristics.

The LCR's focus on sovereign debt has particular implications in the U.S. due to banks' holdings of agency securities (principally MBS and debentures), along with the importance of advances from the FHLB System as a liquidity source for U.S. banks. Specific issues relating to the role of agencies in the LCR are discussed in Section II.A. Here, we address the unintended consequences of the adverse treatment of agency obligations: bank investment portfolios will be less diversified going forward. There may also be a potentially significant decline in bank investment in agency MBS and debentures without any offsetting improvement in liquidity.

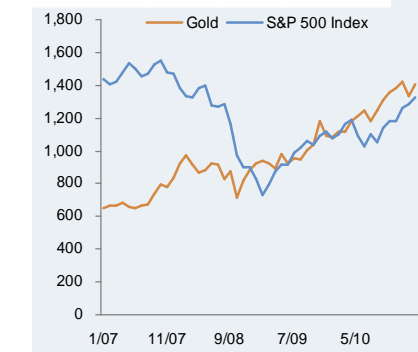
⁴³ In order to meet the LCR shortfall solely by buying L1 assets, U.S. banks would need to increase their U.S. Treasury holdings from 3.2% of total outstanding Treasuries to 14%. If these banks also determine that holding agencies is less attractive than Treasuries, banks could hold up to 28% of total outstanding Treasuries, and this ratio could rise even higher if Treasury issuances return to lower historical levels.

The chart below suggests a more diversified spectrum of liquid buffer assets that will help mitigate the risk of unintended consequences.

	Current LCR Rules	Liquid Asset Buffer should recognize as:
FHLB Capacity	0%	<ul style="list-style-type: none"> A source of liquidity during the crisis by 1st loss / equity owners
Gold	0%	<ul style="list-style-type: none"> Flight-to-quality asset; strong bid for gold during recent crisis
US Agency / Agency MBS	85%	<ul style="list-style-type: none"> Behaving similarly to treasuries, which are included at 100%
Investment Grade Munis	0%	<ul style="list-style-type: none"> Demonstrating, on average, better liquidity during the crisis than US corporate bonds
AAA ABS	0%	<ul style="list-style-type: none"> Behaving similarly to covered bonds, which are included in the liquid asset buffer
Listed Equities	0%	<ul style="list-style-type: none"> A liquid market that exists in all environments for most stocks Daily pricing and transparency

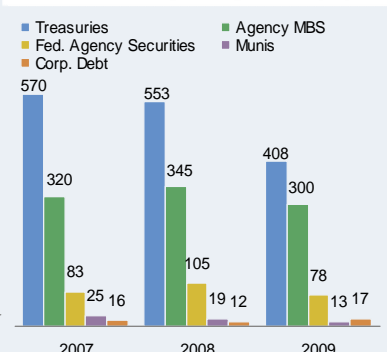
We have addressed the importance of FHLB advances as a liquidity source in Section II.B. The tables below outline why other additional assets should be included in the liquid asset buffer.

Gold:
Price of Gold vs. S&P Index



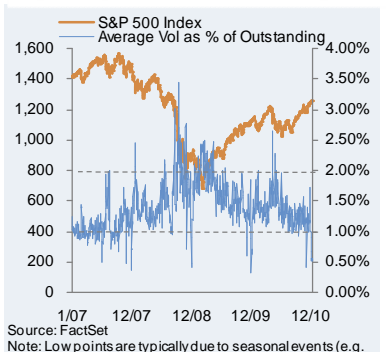
Source: FactSet

Agency / Agency MBS & Munis:
US bond market avg. trading volume (\$B)



Source: SIFMA

Listed Equities:
Avg. trading vol. as a % of outstanding



Source: FactSet

Note: Low points are typically due to seasonal events (e.g. the day before Christmas)

- Gold is considered a flight-to-quality asset. Strong bid usually occurs during a crisis
 - During the last crisis, Gold appreciated by ~35% between 3Q07 and 1Q09
- Gold is a deep and liquid market According to the WGC (World Gold Council) at YE 2009:
 - Total value of the gold market was estimated at \$5.2T+
 - ~\$1.8T is thought to be in the hands of private investors and official institutions
 - Avg. daily turnover in the gold market is ~\$100B
- Agency MBS: large, highly liquid market (around \$300B+ of agency MBS trades each day) that maintained liquidity throughout the recent crisis
- Munis: even though muni trading volumes dropped during crisis (from ~\$23-25B average daily trading volumes in 2006/07), trading volumes remained sizeable (\$13-19B daily trading volumes from 2008/10; ~\$3T munis outstanding) and higher in comparison to US corporate bonds (\$12-16B daily trading volumes from 2008-10)
- Most stocks maintained very high liquidity during the crisis
- Diversified equity positions tend to hold their value even during major crises
- Equity financing is available in times of distress
 - Futures markets – which are a form of equity financing – showed increased activity during the crisis
 - The tri-party repo market remained sizeable and fluid during the recent crisis

C. The Impact of Reduced Agency Holdings on the Mortgage Market

The Basel III liquidity framework’s adverse treatment of agency obligations will negatively (and likely materially over time) affect the U.S. housing market. Agency MBS purchases provide significant support to the U.S. housing market, and mortgage origination in the U.S. depends heavily on a functioning agency MBS market. This market allows lenders to sell their mortgages to issuers and guarantors of MBS, with Fannie Mae and Freddie Mac as the dominant players, to replenish their capital base in order to extend new loans. U.S. banks have a significant stake in these securities, holding approximately \$1.4 trillion, or 18%, of total agency securities outstanding. Agency MBS serve as a store of extremely liquid assets, as markets for them are far more transparent and deep relative to many other L1 and L2 qualifying assets. Outside of U.S. Treasuries and JGBs, the agency MBS market, with Fannie Mae and Freddie Mac securities at approximately \$4.5 trillion, and Ginnie securities around \$1 trillion, is the next largest in terms of outstanding notional.⁴⁴ The market depth of agency securities becomes particularly apparent when considering trading volume and ability to repo as measures of liquidity, discussed in Section II.A.

However, the LCR will force U.S. banks to replace substantial portions of their agency MBS portfolios with U.S. Treasuries. The LCR features that have that result are the treatment of agency MBS as L2

⁴⁴Sources: SIFMA, UK DMO, Dundesbank, Japan MOF, ECBC.

assets, which are limited to 40% of L1 assets, and the “at least” 15% haircut applied to all L2 assets, including agency MBS. Banks replacing agency MBS with U.S. Treasuries would significantly impair the U.S. mortgage market at a point when rapid recovery is needed in this vital area.

D. Perverse Prudential Implications of the Asymmetric Treatment of Financial Institution Liquidity Facilities

The LCR imposes an asymmetric treatment between lenders and borrowers of credit lines. All lines of credit to financial institutions (both credit commitments and liquidity commitments) are assumed to be 100% drawn for purposes of calculating net cash outflows, while all lines of credit from financial institutions are assumed to be unavailable for purposes of calculating net cash inflows during the LCR’s 30-day stress scenario. The rule assumes that “other banks may not be in a position to honor credit lines, or may decide to incur the legal and reputational risk involved in not honoring the commitment.”⁴⁵ But the point of the LCR is to ensure that banks are in a position to honor credit lines. If Bank A has a liquidity facility with Bank B, and both banks are subject to the LCR rules, then Bank B will have pre-funded the liquidity facility. Yet the rules do not allow Bank A to include the potential inflow from drawing on Bank B.

Even in a severe downturn, the expected availability of credit lines will almost always be greater than zero and utilization is extremely unlikely to be 100%. During the financial crisis, the total draw on lines of credit by financial institutions was less than 10% of the available outstanding lines. In the view of The Clearing House, these factors should include, among others, an assessment of the contractual clauses in the lines of credit, the jurisdiction-specific consequences of failing to honor such lines of credit and historical data regarding the availability of such commitments in periods of financial distress.

In addition, in computing the LCR as proposed, a financial institution would have to assume that all inter-company unfunded credit lines to all affiliates of the institution will be fully drawn while asymmetrically assuming no corresponding inflows to the receiving affiliate. This asymmetric treatment, when applied to intra-group liquidity inflows and outflows, could disincentivize groups from maintaining the types of group liquidity management arrangements that can greatly strengthen the resilience of an entity or the group to external shocks.

The consequence of this rule is that banks will dramatically reduce liquidity lines to other banks because the LCR’s required assumption that they are 100% drawn does not reasonably reflect real liquidity risk and imposes significant cost (especially in light of the incorrect treatment of L1 and L2 assets addressed). This is truly a perverse result, as of course liquidity lines provide tremendous support to stressed financial institutions and, thus, are essential shock-absorbers. Even absent stress, these liquidity lines are vital, as they make it possible for receiving banks to maintain reasonable funding levels secure in the knowledge that liquidity is only a call away if market conditions vary or unanticipated opportunities arise. Regulators are rightly concerned about “interconnectedness” – that is, the risk that intra-industry exposures can lead to reverberations of market stress that undermine otherwise sound financial institutions. However, this interconnectedness is being addressed in numerous venues (e.g., the significant change in regulatory capital imposed elsewhere in the Basel III rules for credit exposures to larger financial institutions and pending large-exposure limits). A sound liquidity framework requires

⁴⁵ BCBS, *Basel III liquidity framework*, *supra* note 2, at ¶ 111.

that bank lines of credit to others be appropriately funded, but the LCR's assumptions are punitive and unnecessary in light of recent, catastrophic-risk experience.

V. ENHANCED PRACTICES FOR LIQUIDITY-RISK MANAGEMENT

A. Introduction

Prescriptive arithmetic liquidity ratios, even if perfectly calibrated and internationally consistent, taken alone are not a sufficient response to the need for more robust liquidity risk management. Formulaic ratios are just one tool and, inevitably, have deficiencies. In response to the financial crisis, U.S. banks, with the assistance of their regulators, have made substantial progress in enhancing their liquidity risk management practices. Enhanced practices at these firms are rooted in forward-looking stress scenarios, disciplined corporate governance and comprehensive risk gradation of how a bank's various balance-sheet instruments will behave under stress. This section presents a composite description of what our member banks believe is the current approach to liquidity-risk management at larger (roughly \$50 billion in assets or greater) banking organizations in the U.S.⁴⁶

U.S. regulators played an important role in improving industry practices by establishing new policies on liquidity risk and by stepping up scrutiny of practices firm-by-firm. All of these changes have significantly enhanced liquidity, making the calibrations of the current rules still more quixotic given the increase (discussed in Section I) – not reduction as one would expect – in the liquidity shortfall uncovered in the analysis of QIS data from 2009 to 2010.

B. Recent Developments in Liquidity-Risk Management in the U.S.

Liquidity-risk management in the U.S. has evolved rapidly since the crisis. Financial institutions that survived the disruptions in the financial markets in 2007-2009 had to adjust their practices and risk tolerances to account for actual experiences that exceeded their prior worst case expectations. U.S. regulators also responded by issuing new regulations described in Section C of Appendix 2 and by increasing their focus on liquidity-risk management practices on a firm-by-firm basis.

1. Lessons Learned by Financial Institutions

Prior to the crisis, with the exception of a few larger institutions that actively used scenario analysis, most financial institutions relied on backward-looking balance-sheet liquidity metrics, such as liquid assets as a percentage of total assets, or static ones that track current funding spreads. It was generally assumed that a majority of a bank's assets could provide reliable liquidity through asset-based borrowing and securitization. As banks began to face illiquid markets for mortgages, commercial real estate, corporate loans, automobile and card assets, they were forced to revise their assumptions. Many banks began to do scenario analysis for the first time to assess their liquidity positions.

2. Core Principles Established by the U.S. Regulators

U.S. regulators also played an important role in guiding banks towards more conservative practices. Previously, guidance on liquidity-risk management largely took the form of guidance from examiners

⁴⁶ This description of enhanced practices is focused on depository institutions and therefore does not address the specific requirements of broker/dealers or trust banks, though many of the principles described herein apply to these types of institutions.

rather than explicit rules for U.S. banks. During the crisis, regulatory examiners substantially increased their scrutiny of liquidity-risk management and reviewed each bank's overall framework in-depth, focusing on longer-term stress testing, contingency funding plans (CFPs), corporate governance structure and organizational obstacles to enhanced practices. The issuance of proposed regulatory guidance in 2009,⁴⁷ finalized in 2010 as an Interagency Final Policy Statement on Funding and Liquidity Risk Management,⁴⁸ was a significant milestone, building on the Basel Principles of 2008.⁴⁹

However, the U.S. did not stop with the 2010 interagency statement. In June 2011, the agencies published Proposed Guidance on Stress Testing for Banking Organizations with More than \$10 Billion in Total Consolidated Assets that establishes core principles to meet stress scenarios for both capital and liquidity.⁵⁰ This guidance codifies the advice regulators had been providing banks for several years – that stress testing is an important risk management practice that supports forward-looking assessment of risk. This is not yet reflected in the Basel III rules. Further, the Federal Reserve has mandated several stringent stress tests for the nineteen largest banking organizations, most notably the Comprehensive Capital Analysis and Review (CCAR) stress tests in early 2011⁵¹ that incorporate aspects of liquidity risk to forward-looking capital planning. The Federal Reserve has now proposed far more stringent capital-plan standards⁵² that more directly link capital and liquidity stress-testing and forward-looking analysis, again going well beyond the Basel III standards.

C. Current Enhanced practices

In general, emerging enhanced practices at larger financial institutions integrate liquidity-risk management within overall strategic planning. Liquidity-risk management is recognized as an important risk management function that requires dedicated resources and oversight consistent with other risk areas such as credit risk, operational risk and market risk. In addition, acknowledgement of the interplay between credit, market, operational, and liquidity risks during the crisis has promoted stronger alignment and understanding across the risk functions and capital planning. Since liquidity risk is often the after-effect of adverse credit, operational or market events, an enterprise-wide approach to capital and liquidity stress testing is taken, ensuring that the various risk management and capital planning functions consider stress scenarios in concert, with iterative feedback loops that evaluate ultimate effects. Enhanced practices for the largest institutions have evolved towards the integration of forward-looking views of liquidity risk with the overall strategic planning for the institution. This is in sharp contrast to the "silo" approach taken in Basel III, where capital, liquidity, operational and market risks are addressed as if there were no interactions among them.

⁴⁷ *Proposed Guidance on Funding*, *infra* note 100.

⁴⁸ *Final Policy Statement*, *infra* note 101.

⁴⁹ BCBS, *Principles*, *infra* note 87.

⁵⁰ *Proposed Guidance on Stress Testing*, *infra* note 102.

⁵¹ Federal Reserve System, *Comprehensive Capital Analysis and Review: Objectives and Overview* (Mar. 18, 2011), available at <http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20110318a1.pdf>.

⁵² FRB, *Capital Plans*, *infra* note 103.

Financial institutions should focus on both short-term liquidity and longer-term ‘structural’ liquidity ensuring that institutions fund long-term illiquid assets with long-term liabilities. Each requires its own framework and analysis, and is best communicated with metrics specific to the horizon. The objective of short-term liquidity is to ensure that there is an adequate liquidity buffer to address unexpected adverse developments over a short time period in which mitigating actions are not feasible. The objective of strategic liquidity analysis is to identify vulnerabilities in the institution’s balance sheet or business model that may only manifest themselves over the course of months or years. When such vulnerabilities are identified, the firm can take proactive, deliberate steps to either remove them or to ensure that they are mitigated. The two approaches work in a complementary fashion.

1. Short-Term Liquidity

a. Typically U.S. institutions utilize overnight and other short-term horizons, such as seven days out to 30 days, to establish short-term liquidity buffers using quantitative metrics similar to the LCR. Recognizing that, in the short-term, the firm is less able to react to a substantial unexpected funding gap due to an operational error or sudden stress, these buffers incorporate a high degree of conservatism. Only highly reliable sources of liquidity are included in the buffer such as cash and asset-based funding sources that can be tapped readily with reliable counterparties (e.g., FHLB and repo counterparties).

b. As also noted in Section V.D below, the judgments that firms make in developing their internal liquidity metrics are complex and take into account firm-specific conditions, such as their current and potential financial position and standing in various markets. In contrast, the LCR and NSFR are formulaic and while useful as broad, standardized measures, firms, with supervisory review, are better able to evaluate the liquidity of their assets, liabilities and OBS items based on their client capacity, market participation, operational capability and current and potential financial condition.

c. Additional stress may be incorporated through adoption of formal scenarios, similar to those used in the longer-term strategic framework, focused on specific factors over a shorter survival horizon. Alternatively, the sources of liquidity can be increasingly restricted and/or haircut according to a pre-established schedule of escalating stress stages. In either methodology, measurement of liquidity buffers takes into account the diminished liquidity value of liquid assets due to idiosyncratic as well as market liquidity and funding liquidity developments.

2. Longer-Term Strategic Liquidity

a. Financial institutions conduct multiple stress scenarios over time horizons of one year or longer (survival horizons) that address the vulnerabilities of the institution. Such vulnerabilities may include over-reliance on certain funding sources, loan/investment portfolios that exhibit high credit risk or unreliable market liquidity, considerable off-balance sheet (OBS) commitments that would generate cash outflows in times of stress, and/or a business model that requires a minimum rating. The scenarios contemplate institution-specific events, systemic market disruptions and a combination of the two.

b. The development of stress scenarios is an iterative process whereby executive management and the board are actively engaged in the discussion of which scenario or scenarios

express the risk tolerance of the firm. The level of risk tolerance determines the severity of the scenario and, in turn, the results of the stress scenarios help management articulate both its risk tolerance and management of that risk. Once the level of risk tolerance is established, that stress scenario or set of scenarios that reflect management's risk tolerance are used to establish minimum liquidity buffers that are to be maintained throughout the designated survival period.

c. These liquidity buffers may take the form of minimum projected liquid assets that remain after all forecasted cash outflows in the scenario or a ratio of liquid assets as a proportion of such forecasted outflows.

d. Stress scenarios help optimize the mix of balance sheet liquidity and structural liquidity. Balance sheet liquidity, or highly liquid assets that can be readily converted to cash in stress, can be reduced to the extent that projected cash outflows in times of stress can be reduced. Projected outflows may be reduced by adding structural liquidity, or term funding that has no potential for early withdrawal under any circumstances. Just as credit risk management can minimize reserves for credit losses by maintaining a high quality loan portfolio, liquidity-risk management can minimize liquid asset holdings by maintaining a highly reliable liability portfolio through sufficient structural liquidity. The optimal mix of balance sheet and structural liquidity will depend upon a number of factors including the relative costs of each. Generally an overall targeted amount of structural liquidity is established given the institution's unique balance sheet structure. For example, many firms utilize a cash capital or working capital ratio, which is similar in nature to the NSFR, whereby structural liquidity is sized to cover the firm's least liquid assets.

e. Stress scenarios also inform contingency funding planning. Through stress testing, the reliability of the institution's deposits, wholesale funding sources and contingent assets are analyzed. Each of these will contribute to cash outflows during times of stress, though not always for the same reasons. CFPs describe the framework for managing adverse liquidity events and are a key component of the firm's stress tests. The CFP prescribes roles and responsibilities, management actions for various levels of stress, and identifies alternative contingent sources of liquidity to ensure that the firm may continue to fund normal operating requirements. Enhanced practices also dictate that risk capacity, as derived from stress test results, is linked with a firm's liquidity position as calculated on a daily basis.

f. Stress testing, limits on liquidity mismatches, and contingency funding planning are dynamic. As macroeconomic, market, and institution-specific conditions change, stress scenarios, liquidity mismatch limits, and CFPs are adjusted to ensure that they are relevant in light of current conditions.

D. Classification of Liquidity Risk and Benefits

A critical aspect of liquidity-risk management that underpins stress testing is the identification and classification of balance sheet instruments and QBS with respect to their liquidity risk characteristics, specifically how the various instruments will behave in stress conditions. Run-off factors for liabilities, draw-down factors for contingent assets and liquidity values for liquid assets are analyzed and assigned for each scenario.

Just as credit risk managers classify loans for ultimate sizing of reserves for credit losses and capital, liquidity risk managers grade assets, liabilities and OBS items to determine both the appropriate amount of high-quality liquid assets to maintain and the likely “time to liquidity”. However, unlike existing frameworks for measuring credit risk (accounting standards under U.S. GAAP or IFRS, and regulatory approaches under the Basel Committee’s capital frameworks), there is no standardized approach for liquidity risk classification. Liquidity risk managers apply a judgmental approach, taking into consideration industry data that demonstrate behavior in past crises, as well as input from subject matter experts in the lines of business. In current practice, regulatory examiners review management’s stress scenario assumptions to ensure that they are well thought out and are reasonable.

Liquid assets are carefully monitored to ensure that ongoing developments, both institution-specific and macroeconomic, are captured in estimating the liquidity value of liquid assets in stress conditions. Alignment and strong communication with colleagues managing market risk and credit risk, as well as front-line colleagues dealing directly with the financial markets, clients and operational considerations with respect to the firm’s investment and wholesale funding portfolios, are critical to ensure that liquidity risk managers have relevant information about liquidity value and timing. Assumptions about liquidity values and time to liquidity in stress conditions are made based on risk gradation of the various asset types, and these assumptions are reviewed on a regular basis.

The importance of risk and benefit classification cannot be emphasized enough. Analogous to capital allocation to cover credit and market risks through classification of appropriate risk-weighting of assets under Basel II, a bank’s assets, liabilities and OBS items must also be “risk-weighted”. There are many complicated factors to consider such as how the various liabilities and contingent assets operate in applicable markets and the particulars of the product features.

E. Incorporation of Liquidity Risk in Funds Transfer Pricing

The risk classification described above is used to allocate costs and benefits of liquidity to business lines to ensure alignment of their risk-taking incentives with the liquidity risk exposure their activities create for the institution as a whole. In addition to the normal operating costs and benefits of liquidity in a firm’s funds transfer pricing (FTP) program, financial institutions also assess the costs of contingent liquidity that must be reserved for products that give rise to increased liquidity needs during times of stress, when new funding is unlikely to be available. These institutions incorporate liquidity costs, benefits and risks in internal product pricing, performance measurement and the new product approval process for all material activities.

F. Conclusion

The Clearing House supports banks' and regulators' endeavors to develop a comprehensive liquidity risk monitoring framework that incorporates a standardized, properly calibrated quantitative approach to measuring liquidity risk. Metrics that capture an institution's liquidity position in a forward-looking stress scenario are unarguably the most meaningful and reflect enhanced practices at larger banks and, over time, the LCR and NSFR could serve as two quantitative metrics for liquidity risk to be incorporated as standardized measures that would be part of the overall liquidity risk management framework. However, we believe that these two measures should supplement, not supplant, internal measures of risk, and should be evaluated alongside the internal measures when evaluating the overall liquidity position of the firm. At the core of liquidity stress scenarios lies a liquidity risk/benefit classification scheme that predicts the behavior of an institution's liabilities and contingent assets under stress, as well as the liquidity value of its liquid assets under stress. Assessing the liquidity value of liquid assets is the easier of the two given that there is a limited set of liquid asset types that can be considered reliable in times of stress. U.S. financial institutions and regulators must work together to establish a comprehensive liquidity risk monitoring framework which ensures that risk classification of liabilities and contingent assets are appropriately calibrated and synchronized across firms before a standardized metric can be established.

VI. OTHER QUALITATIVE CONSIDERATIONS

A. Role of Government Liquidity Facilities During the Financial Crisis

As discussed in Section II and demonstrated in the Liquidity Study, the Basel liquidity rules employ run-off factors that fail to reflect actual experience of U.S. banks during the financial crisis. In contrast, the calibrations in the Liquidity Study, described in this paper, are derived from data received from The Clearing House member banks that reflect actual worst-case/worst-period experience generally in advance of the establishment of government liquidity support facilities deployed during the crisis.

Regulators have asked whether it is possible to filter out the impact of U.S. government support programs -- or more broadly the perception that the U.S. government may provide support -- from the worst case/worst period analysis of calibrations reflected in The Clearing House Liquidity White Paper. The question is a good one, and it is very difficult to completely remove government support -- actual or potential -- from this type of analysis. However, comparison of the timing of U.S. government support programs during the financial crisis and the experience of several banks that failed during the crisis before most government support programs were in place provides a partial answer. Moreover, calibrating the LCR to a standard that truly eliminates all governmental support -- again, actual or potential -- tends toward the "no bank ever fails due to liquidity risk" goal discussed in the introductory paragraphs of Section II. We believe such a goal is impractical.

As shown in the Liquidity Study, government liquidity support from the Federal Reserve Board, Treasury and FDIC reached its peak in December of 2008 at nearly \$1.2 trillion of net liquidity. However, it is important to recognize that these facilities were not all established in a single instance. Many of these facilities were intermittently deployed between the fourth quarter of 2007 and the fourth quarter of 2008 as the full extent of the crisis became apparent. Further, many of the emergency liquidity facilities were used to support non-banking organizations (e.g., money-market funds) and/or financial institutions (investment banks, foreign institutions) not included in this study. Thus, the actual existence of massive government liquidity-support programs -- which of course were put in place in the crisis -- does not support a simple conclusion that bank calibrations in this study are far less severe than those in the Basel III standard solely due to use of emergency-support programs.

The Liquidity Study, in contrast to the assumptions incorporated in the Basel rules, presents calibration data that reflects actual worst-case/worst-period scenarios, though perhaps not the worst case possible, for two U.S. banks that failed during the financial crisis: Wachovia Bank and Washington Mutual. Importantly, Wachovia and Washington Mutual failed and were acquired by other banks on October 3, 2008 and September 25, 2008, respectively, before the majority of government liquidity facilities had been established. Indeed, on October 3, 2008, when Wachovia Bank was sold to Wells Fargo, the only government liquidity facility directed towards banks then in operation was the Term Auction Facility (TAF), which was established by the Federal Reserve Board on December 12, 2007. While Wachovia and Washington Mutual both made use of this facility, they collectively accessed only \$20 billion before their eventual sales. Therefore, calibrations derived from these two institutions can serve as appropriate benchmarks for stress in the absence of government support. Initial conclusions that can be drawn from these acquired institutions demonstrate that:

- The worst 30-day run-off for retail deposits at insured depositories was in-line with the LCR, but uninsured deposits experienced a significantly more severe run-off factor.
- The worst run-offs in demand deposit accounts and negotiable order of withdrawal accounts were less severe than the LCR factor for operational wholesale deposit accounts, and run-offs in money market demand accounts and non-core deposits was less severe than the non-operational account factor.

B. Conflicting Capital and Liquidity Regulation

A key prudential concern is the manner in which the LCR works in tandem with the capital requirements applicable to large U.S. banks. Even if the Basel III capital and liquidity rules were wholly justified as finalized, the two standards intersect to result in unintended and adverse consequences.

First, the Basel III rules require capital adjustments based on unrealized gains and losses, increasing earnings and capital volatility related to holdings of obligations marked to market under applicable accounting standards. This creates an incentive for some banks to move away from fixed-income and other assets favored under the liquidity rules even though these assets may pose little long-term credit risk – the reason they are selected for favorable treatment in the liquidity rules. While the fixed-income assets favored in the liquidity rules are generally granted favorable risk-based capital treatment, U.S. banks are under significant pressure to increase capital against these risk weightings which affects their ability to hold all assets and may even create incentives to hold higher-risk ones. Further, the U.S. is the only nation with a leverage capital requirement that forces significant amounts of capital to be held even against assets such as U.S. Treasury obligations that are granted a zero under the risk-weighting scheme. Pressures here are clearly evident, as recent market events have led to unprecedented amounts of these holdings and further leverage-related capital stress.

Second, the LCR forces U.S. banks to shift out of certain asset classes – e.g., holdings of agency MBS and debentures – to U.S. Treasuries and other sovereign debt. This will have a significant and adverse impact on the U.S. mortgage market, but it also has a surprising impact on the structure of the U.S. banking industry: it will force big U.S. banks to grow their balance sheets even larger so that they can hold enough capital to offset the cost of the LCR’s forced asset shift. However, deposit products present their own risks – e.g., interest-rate mismatches. Thus, to be prudent, a bank will need to “gross-up” its balance sheet with hedging instruments to match its liability profile, essentially ballooning its balance sheet for non-business reasons created by an ill-designed liquidity measure that forces uneconomic liability strategies that, in turn, require new hedging strategies for continued safe-and-sound operation.

C. Research Assessment

Since the onset of the financial crisis, there has been a relative dearth of research focused on the assumptions on which the Basel III liquidity framework’s rules are based and macroprudential and macroeconomic effects of enhanced liquidity-risk standards as compared to the attention accorded capital requirements. And the limited research published to date is inconclusive. Academic and regulatory research discussed further below makes clear that even the Basel Committee and its parent organization, the Bank for International Settlements (BIS), have significant qualms about the assumptions on which these rules are premised. The International Monetary Fund (IMF) has sounded a clear, cautionary note, stating that “[P]olicymakers will need to be conscious of the interactive effects of

multiple approaches to mitigate systemic risks. Capital surcharges or other tools to control systemic solvency risk could help mitigate systemic liquidity risk.”⁵³ The Clearing House does not support a capital surcharge and has elsewhere conducted extensive research on it to demonstrate its adverse implications,⁵⁴ but these problematic results are compounded when a surcharge is imposed in tandem with a new, costly liquidity requirement that is implemented at the same time numerous other new rules are being put in place with unknown implications when all are taken into full account. Even the Chairman of the Federal Reserve Board, Ben Bernanke, has noted that the total cost of all of these rules is still unknown to the regulators.⁵⁵

1. Concerns with a Bank-Centric Approach

As the IMF paper cited above addresses, the current approach to governing liquidity risk is bank-centric.⁵⁶ As a result, it may encourage a transfer of liquidity risk from regulated banks to unregulated, or less regulated, “shadow” organizations, doing little thereby to prevent future financial crises. The FSB has begun to consider how various bank-centric rules may encourage the transfer of financial activities from regulated providers of credit intermediation (e.g., traditional banking) to shadow firms,⁵⁷ but has taken no concrete action yet to address this major risk. It is vital that the liquidity rules, like all the others now being demanded of banking organizations, be carefully calibrated to prevent risk migration outside of regulated institutions and from nations with meaningful regulatory regimes to “haven” states.

2. Studies Evaluating the LCR’s and NSFR’s Impact Are Inconclusive

The studies that have sought to evaluate the impact of the LCR and NSFR have been inconclusive at best. As many of the studies have noted, accurately measuring liquidity data and modelling challenges make the pending standards particularly difficult to analyze.⁵⁸ For example, two BCBS reports published in

⁵³ Jeanne Gobat et al., *International Monetary Fund: How to Address the Systemic Part of Liquidity Risk: Global Financial Stability Report* (April 2011), available at <http://www.imf.org/external/pubs/ft/gfsr/2011/01/pdf/press2.pdf>.

⁵⁴ Letter from The Clearing House to Timothy Geithner, Secretary, U.S. Department of Treasury, Ben Bernanke, Chairman, Board of Governors of the Federal Reserve System, Sheila Bair, Chairman, FDIC, and John Walsh, Acting Comptroller of the Currency, OCC (June 15, 2011) available at <http://www.theclearinghouse.org/index.html?f=072373>.

⁵⁵ Chairman Bernanke, Remarks at a Question and Answer Session Following Chairman Bernanke’s Speech on the U.S. Economic Outlook (June 7, 2011) (transcript available at <http://video.cnn.com/gallery/?video=3000026289>) (stating: “Has anybody done a comprehensive analysis of the impact on credit? I can’t pretend that anybody really has. It’s just too complicated. We don’t really have the quantitative tools to do that.”).

⁵⁶ Gobat, *supra* note 54.

⁵⁷ Financial Stability Board, *Shadow Banking: Scoping the Issues*, (Apr. 12, 2011), available at http://www.financialstabilityboard.org/publications/r_110412a.pdf.

⁵⁸ BCBS, *An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements* (Aug. 18, 2010) at 14, available at <http://www.bis.org/publ/bcbs173.pdf>.

August 2010 assess the transition to the LCR and NSFR⁵⁹ and the long-term economic impact of these standards.⁶⁰ Both studies acknowledge that a number of assumptions need to be made in order to model the effects of the liquidity rules, noting further that these assumptions are subject to debate. An assessment of the status of recent research, focusing principally on these BCBS and related studies, is helpful to understanding the quantitative and qualitative analytics presented elsewhere in this white paper.

The BCBS study on long-term effects does not advocate particular calibration levels, but it does estimate that, in order for banks to meet the NSFR, lending spreads will increase by fourteen basis points after synergies with increased capital requirements are taken into account.⁶¹ While the report suggests there are net economic benefits for enhancing capital and liquidity requirements, it concedes that, in measuring the impact of liquidity, “there is a range of uncertainty around estimates of central tendencies, reflecting data limitations and the need for various modeling assumptions.”⁶² Indeed, the report does not specifically evaluate the LCR because “based on the information available...it was only possible to model the December 2009 proposal for the NSFR, albeit imperfectly.”⁶³

Similarly, the BCBS study on the transition phase to enhanced prudential standards states that “a 25% increase in liquid asset holdings is estimated to lower GDP by a maximum of 0.13% of GDP” but concedes that many of the models used to arrive at this number were more “uncertain about these results than those for capital, noting that the statistical relationship between liquidity ratios and lending spreads tended to be weak. Given data limitations, not all member nations were able to model the potential impact of the NSFR.”⁶⁴

Similarly problematic, a BIS working paper offers a map for bank compliance with the NSFR and estimates the corresponding increase in lending spreads to be twelve basis points after accounting for the fall in risk-weighted assets due to capital synergies, but the methodology is admittedly “based on a series of assumptions” and the “estimates are sensitive to changes in the balance sheet structure.”⁶⁵

The results of a more recent study performed by the BIS Monetary and Economic Department were in line with these BCBS findings.⁶⁶ Using a number of widely accepted macroeconomic models to

⁵⁹ BCBS, *Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements – Interim Report* (Aug. 18, 2010), available at <http://www.bis.org/publ/othp10.pdf>.

⁶⁰ BCBS, *Long-Term Economic Impact*, *supra* note 59.

⁶¹ *Id.* at 24.

⁶² *Id.* at 31.

⁶³ *Id.* at 23.

⁶⁴ BCBS, *Macroeconomic Impact*, *supra* note 60, at 18.

⁶⁵ BIS, *Working Paper No. 324: Mapping Capital and Liquidity Requirements to Bank Lending Spreads* (Nov. 2010) at 27-28, available at <http://www.bis.org/publ/work324.pdf>.

⁶⁶ P. Angelini et al., *BIS Working Paper No. 338, BASEL III: Long-Term Impact on Economic Performance and Fluctuations* (Feb. 2011), available at <http://www.bis.org/publ/work338.pdf>.

analyze the impact of various combinations of higher capital ratios and liquidity targets on long-term economic performance, this paper found that a 25% increase in the liquidity ratio (as defined in these models) results in an eight basis point reduction in baseline output projections, and a 50% increase results in a fifteen basis point reduction.⁶⁷ In addition to economic performance, this study also examined the long-term effect of higher liquidity requirements on economic fluctuations and found that a 25% increase in the liquidity ratio results in a 1% reduction in the standard deviation of output.⁶⁸ While the results of this study were, in the opinion of the authors, consistent with those of the BCBS findings presented above, they acknowledge limitations of the approach that introduce uncertainty to their conclusions. Specifically, the study acknowledges that current macroeconomic models are not well suited to forecasting the impact of the Basel III liquidity standards because they either do not account for bank liquidity entirely or they rely upon “very simple [liquidity] definitions (e.g. [sic] the ratio of cash and government bonds to total assets), quite distant from the complex measures introduced by the new rules.”⁶⁹ In addition, the study points out that data gaps and modelling uncertainty did not allow for an account of national heterogeneities.⁷⁰

While BIS economists have been unable to confidently quantify the impact of the liquidity rules, the BCBS has prescribed these rules using assumptions of uncertain validity. For example, the Basel III liquidity rules evidence a strong preference for banks to use sovereign securities to meet the LCR requirements. The underlying rationale for this preference would seem to be that sovereign securities that meet certain liquidity benchmarks may be just as good as cash during a stress scenario.⁷¹ The support for this argument is questionable and discounted by a new supervisory study and recommendations on sovereign credit risk published by the BIS Committee on the Global Financial System (CGFS).⁷² This paper demonstrates that downgrades in sovereign credit reduce the ability of banks to cost-effectively access important funding channels such as the market for wholesale funds.⁷³ The CGFS notes that the advanced economies, specifically the U.S. and EU members, may be entering a period of heightened sovereign risk due to the extraordinary measures undertaken by these countries during the financial crisis and their ongoing fiscal struggles with debt and rising government obligation costs.⁷⁴ While the Basel III liquidity rules are not specifically mentioned in this paper, the CGFS does conclude that the financial crisis has shown that sovereign debt may not be liquid or riskless in all

⁶⁷ *Id.* at 20.

⁶⁸ *Id.*

⁶⁹ *Id.* at 5.

⁷⁰ *Id.* at 1.

⁷¹ BCBS, *Basel III liquidity framework*, *supra* note 2, at ¶¶ 38-40.

⁷² BIS, *The Impact of Sovereign Credit Risk on Bank Funding Conditions* (July 11, 2011), available at <http://www.bis.org/publ/cgfs43.pdf>.

⁷³ *Id.* at 1.

⁷⁴ *Id.*

instances, and it advises national authorities to proceed with caution when implementing policies which incentivize banks to hold large amounts of government securities.⁷⁵

3. Only One Study Attempts to Assess the Basel III Liquidity Framework's Impact on the Banking Industry Per Se

Only one final study to date attempts to assess the impact of the liquidity rules on the banking industry per se, though the authors to our knowledge conduct this examination in combination with the new capital rules. In a recent paper, Bill Allen et al. conclude that Basel III will force banks to change their current business model from one of asset-driven liability management, which is predicated on easy access to the short-term wholesale markets, to one of asset management, where asset volumes are constrained by the availability of long-term funding.⁷⁶ Otherwise stated, bank balance sheet size will be limited by the ability to attract funding and not the ability to find assets.⁷⁷ According to the authors, this constraint will inevitably result in higher lending rates to compensate banks for the increase in their funding costs.⁷⁸ However, this paper finds that “in the long run (once there is a full adjustment) the costs of credit to most bank borrowers will be only moderately affected ...,”⁷⁹ citing as an example corporate loan portfolio increases of no more than 60 basis points.⁸⁰ The authors support this conclusion by asserting that policymakers will adjust fiscal and monetary policies to mitigate the impact of the Basel III rules on bank lending rates.⁸¹ In addition, the authors argue that banks will absorb some measure of the Basel III costs through efficiency gains and cost reductions rather than pass along the full cost impact to their customers.⁸² This positive result is, however, tempered by a more negative assessment in this study of the rules’ effects at the riskier end of the credit spectrum. There, high credit risk borrowers such as small businesses will bear the brunt of the rules’ impact as Basel III punishes bank assets with higher risk weightings or those more likely to be impaired during a major economic downturn.⁸³ This is a significant factor since these companies often do not have access to funding through capital markets. The resultant tightening of credit at this end of the spectrum could, therefore, move these “borrowers to more expensive forms of credit (or den[y] them credit altogether).”⁸⁴ The

⁷⁵ *Id.* at 2.

⁷⁶ Bill Allen et al., *Basel III: is the cure worse than the disease?* (Sept. 2010) at 3, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1688594.

⁷⁷ *Id.* at 4.

⁷⁸ *Id.* at 13.

⁷⁹ *Id.* at 4.

⁸⁰ *Id.* at 26.

⁸¹ *Id.* at 13.

⁸² *Id.* at 17.

⁸³ *Id.* at 28.

⁸⁴ *Id.* at 28 (quoting Ben Bernanke, *Credit in the Macroeconomy*, Federal Reserve Bank of New York Quarterly Review (Spr. 1993) at 56).

authors suggest that the exclusion of these types of borrowers from the credit market may have long-term negative effects on economic output as small businesses are important engines of employment and business innovation.⁸⁵

⁸⁵ *Id.* at 29.

Glossary

ABS – Asset Backed Securities
Basel Committee or BCBS – Basel Committee on Banking Supervision
BHC – Bank Holding Company
BIS – Bank for International Settlements
BIS CGFS – Bank for International Settlements Committee on the Global Financial System
CBRC – China Banking Regulatory Commission
CCAR – Comprehensive Capital Analysis and Review
CFP – Contingency Funding Plans
CGFS – BIS Committee on the Global Financial System
CMM – Constant Maturity Mortgage
CP – Commercial Paper
CRAs – Credit Rating Agencies
CRD IV – Capital Requirements Directive IV
DDAs – Demand Deposit Accounts
EBA – European Banking Authority
EC – European Commission
ECB – European Central Bank
EU – European Union
FHLBs – Federal Home Loan Banks
FHLB System – Federal Home Loan Bank System
FI – financial institution
FI Liquidity Lines – Financial Institution Liquidity Lines
FSB – Financial Stability Board
FTP – Funds Transfer Pricing
GAAP – Generally Accepted Accounting Principles
GSE – Government Sponsored Enterprise
HKMA – Hong Kong Monetary Authority
IFRS – International Financial Reporting Standards
IMF – International Monetary Fund
JGBs – Japanese Government Bonds
L1 Assets – Level 1 Assets
L2 Assets – Level 2 Assets
LC – Letter of Credit
LCR – Liquidity Coverage Ratio
The Liquidity Study – the study attached as Appendix 1
LTD Ratio – Loan-to-Deposit Ratio
MBS – Mortgage-Backed Securities
McKinsey & Company, Inc. – McKinsey
MMDA – Money Market Deposit Accounts
MMMFs – Money Market Mutual Funds
NSFR – Net Stable Funding Ratio
OBS Assets – Off-Balance Sheet Assets
QIS – Quantitative Impact Study
RWAs – Risk Weighted Assets

SBPA – Standby Bond Purchase Agreements
September Clearing House Study – the study attached as Appendix 2
SME – Small and Medium Enterprises
USG – United States Government
VRDN – Variable Rate Demand Notes
Wells Fargo – Wells Fargo and Company

Appendix

Background

As noted in the Introduction to this white paper, the Basel III liquidity framework is the cornerstone of the regulatory community's response to inadequacies in liquidity-risk management that became apparent during the financial crisis. Liquidity risk is the risk that a bank or other entity will be caught short – that is, while it has the capital and other assets to meet its obligations over time, it cannot honor immediate claims because the funds to do so are inaccessible, previously committed or simply not in place. In this Appendix 2, we have summarized the Basel III liquidity framework and highlighted liquidity-risk regulatory developments in the United States apart from pending implementation of the Basel III standards.

A. Global Regulatory Action

The liquidity rules in Basel III reflect lessons learned during the financial crisis. Liquidity stress in the crisis began in 2007 and, in some cases, occurred at financial institutions that, while in full compliance with applicable capital standards or even well above Basel II requirements, still experienced acute stress or even failed. Markets evaluated the capital position of firms in real time and assessed the amount and composition of capital. As a result, the evaluation of a firm's viability may have differed from the definition of solvency in the regulatory capital rules and in certain instances resulted in denial of market funding. Because markets before the crisis were in boom mode, institutions (especially non-banks like Lehman Brothers) were easily able to obtain funding and often sought to maximize returns by moving to shorter-term instruments that cost less even though the assets being funded had considerably longer tenors. Often, off-balance sheet (OBS) assets, especially non-contractual ones, went wholly unfunded even though firms under pressure needed to fund these assets to honor their explicit or implicit commitments under stress to avert still more extreme stress in what they feared would be a downward spiral of systemic risk. When markets froze and short- and long-term funding markets evaporated, many firms were threatened because they simply could not meet their immediate obligations. In response, hundreds of billions of dollars in government facilities were rapidly constructed to support financial markets in turmoil due to the liquidity strains and the solvency crisis brewing as a result of rapidly deteriorating asset quality and insufficient capital.

It is vital to note the inter-relationship between liquidity and capital regulation, as well as the impact of these two critical regulatory issues with another important pending reform: new resolution practices for very large financial institutions, including cross-border ones, to ensure that they can be resolved under stress and that none is too big to fail. Liquidity and capital stress reverberate in ways clearly seen during the financial crisis that could likely have been handled at the time had effective resolution protocols been in place in concert with improved capital and liquidity resilience. For example, when firms scramble to meet claims from counterparties for which they lack ready funds, they will often seek to sell assets to raise these funds. Doing so under stress market conditions creates "fire sales" – that is, downward spirals of market prices as investors seek to unload assets before prices drop still farther as more panicky sellers seek to do the same. Downward asset pricing creates "cliff effects," situations in which a single action like stress on one systemic institution leads to dramatic reductions in asset valuations that, in turn, undermine capital adequacy, precipitating another round of market and regulatory actions that exacerbate stress and provoke still more systemic risk. The absence of proven

orderly-resolution protocols for systemic institutions during the crisis made the drop off these cliffs still more pronounced and quick because investors feared unbridled market chaos as even the soundest systemic firms struggled to handle the catastrophic stress of a financial market seemingly in free-fall.

To address the liquidity-risk issues experienced during the crisis, the final Basel III liquidity standards were issued in December 2010 following principles-based global guidance in this area in 2008⁸⁶ and a proposal for a more prescriptive set of quantitative requirements released in 2009.⁸⁷ The final standards build on the earlier requirements, but go well beyond them by stipulating two minimum quantitative requirements: a liquidity coverage ratio (LCR) and a net stable funding ratio (NSFR), along with numerous supplementary requirements.

When the Basel Committee released the final standards, the United States, through the regulators that sit on the Basel Committee, made clear that it intended to implement the rules. National regulators do, however, have discretion not only with regard to certain aspects of these ratios, but also are able to vary certain parameters to reflect national conditions and/or to set higher minimums. As with the capital rules, the Basel Committee plans “rigorous” evaluation to ensure that nations meet at least the minimum liquidity rules and apply them in a fair, transparent fashion. However, the complexity of the standards and the significant scope of national discretion could still result in wide variation among implementing nations. Indeed, variance is already emerging, with the European Union (see Section III.A.) initially deciding not only to liberalize the LCR (essentially making it a goal, not a binding rule), but also to defer implementation of the NSFR. The fate of the Basel III standards in major Asian markets is also, at best, unclear (see Section III.B.).

The final Basel III standards are to be implemented through rules nations must finalize by year-end 2012, but numerous transitions to them are provided. Bank reporting to supervisors on the LCR and NSFR is to begin on January 1, 2012, for the observation periods,⁸⁸ although the degree to which this can occur is at best uncertain given the absence of final implementing standards in the U.S. and other key nations. “Unintended consequences” will be addressed as they are identified through these transitions, based in part on findings through an observation period that was to begin in 2011 for the LCR. The LCR will then be “introduced” on January 1, 2015, with any changes to it made by mid-2013. The NSFR, including any revisions, will move to a minimum standard by January 1, 2018, with changes to it following the observation period made by mid-2016.⁸⁹ However, this entire schedule is uncertain due to the lack of final implementing rules, differing national regimes related to liquidity and, most importantly, the uncertain results of the observation periods. The degree to which banks, including those in the U.S., will be held to the LCR and NSFR during the implementation period is also uncertain, as is the market impact of any reporting related to the rules as they are tested.

⁸⁶ BCBS, *Principles for Sound Liquidity Risk Management and Supervision* (Sept. 25, 2008), available at <http://www.bis.org/publ/bcbs144.pdf>.

⁸⁷ BCBS, *Consultative Document: International Framework for Liquidity Risk Measurement, Standards and Monitoring* (Dec. 17, 2009), available at <http://www.bis.org/publ/bcbs165.pdf>.

⁸⁸ BCBS, *Basel III liquidity standards*, *supra*, note 2, at 197.

⁸⁹ *Id.*

B. Basel III Liquidity-Risk Standards: Key Provisions

The Basel III standards are complex, imposing significant operational and supervisory challenges for covered banking organizations and their regulators. The global rules are to apply at the parent, legal entity and branch/subsidiary level, taking into account an array of complexities (e.g., varying currencies in which obligations are held, legal impediments to fund transfer, and operational requirements to report liquidity under stress as quickly as daily).

1. Liquidity Coverage Ratio

This standard aims to ensure that a bank maintains a sufficient level of cash and other unencumbered, high-quality liquid assets that can be converted into cash to meet liquidity needs for a thirty calendar day time horizon under a significantly severe liquidity stress scenario specified by supervisors. The stock of liquid assets at a minimum should enable the bank to survive until Day 30 of the stress scenario, by which time it is assumed that appropriate corrective actions will be taken by management and/or regulators, and/or the bank can be resolved in an orderly fashion.⁹⁰ The rules include numerous ways to stress-test liquidity, including mandatory consideration of stresses such as a ratings downgrade, market volatility, and rapid drawdown of liquidity facilities.

The standard requires that the value of the ratio be no lower than 100% (i.e., the stock of high-quality liquid assets should at least equal total net cash outflows). Banks and supervisors are also expected to be aware of any potential mismatches within the 30-day period and to ensure that sufficient liquid assets are available to meet any cash flow gaps.⁹¹

Critical to the LCR (as well as to the NSFR, as shall be discussed below) are the definitions underlying key terms. In order to qualify as a “high-quality liquid asset,” assets should be liquid under stress and, ideally, be central-bank eligible. The standards detail the characteristics and operational requirements that meet these criteria, with liquidity judged according to the stress scenarios discussed above.⁹²

Eligible assets are divided into Level 1 (L1) assets (which may be held without limit) and Level 2 (L2) ones, which may comprise up to 40% of the stock (taking into account the unwind of certain secured-funding transactions). National supervisors may also apply haircuts to L1 assets based on factors such as duration or risk. Ratings are among the criteria determining these levels, a provision in Basel III that will complicate implementation in the U.S., where the Dodd-Frank Act bars reliance on ratings determinations in all federal regulation.⁹³ Quantitative and qualitative criteria for L2 assets are among the factors up for review during the observation period, along with strategies for nations with scant supplies of otherwise eligible L2 assets.

⁹⁰ BCBS, *Basel III liquidity standards*, *supra* note 2, at ¶ 15.

⁹¹ *Id.* at ¶¶ 16-19.

⁹² *Id.* at ¶¶ 12-13.

⁹³ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, Section 939A (2010).

Total net cash outflows are defined as the total expected cash outflows minus the total expected cash inflows in the specified stress scenario for the subsequent thirty calendar days. Total expected cash outflows are calculated by multiplying the outstanding balances of various categories or types of liabilities and OBS commitments by their expected runoff or drawdown rates. Total expected cash inflows are calculated by multiplying the outstanding balances of various categories of contractual receivables by the rates at which they are expected to flow in under the scenario up to an aggregate cap of 75% of total expected cash outflows,⁹⁴ with one of the most critical factors here being the expected outflows of deposits and other funding sources under stress (minimum rates are included in the rule). A set of limits on other contractual inflows is also established, with a 0% inflow assumed for “operational” deposits with other financial institutions.

The rules, in one of the more stringent provisions, require banks to assume zero inflow from their own liquidity facilities from other institutions – that is, banks are to assume that they receive no liquidity from third parties to handle outflow demands. Conversely, banks providing liquidity facilities are to assume that these are fully drawn down.⁹⁵

2. Net Stable Funding Ratio

This standard establishes a minimum acceptable amount of stable funding based on the liquidity characteristics of a firm’s assets and OBS activities over a one year horizon under stress (defined for the NSFR to include a broader range of events than under the LCR). This metric is designed to act as a minimum enforcement mechanism to complement the LCR and reinforce other supervisory efforts by promoting structural changes in banks’ liquidity-risk profiles away from short-term funding mismatches toward more stable, longer-term funding of assets and OBS business activities. The NSFR is defined as the ratio of the amount of available stable funding compared with the amount of required stable funding. This ratio must be above 100%.⁹⁶

“Stable funding” is the portion of those types and amounts of equity and liability financing expected to be reliable sources of funds under extended stress over a one year horizon. The amount of required funding is a function of the liquidity characteristics of various types of assets held, OBS contingent exposures incurred and/or the activities pursued by the institution. The rule defines available stable funds, including in this the bank’s capital, long-term liabilities, and some wholesale-funding sources.⁹⁷ Different run off factors are assigned to various forms of deposit liabilities.

3. Additional Requirements – Monitoring Tools

The Basel III standards include not only these ratios, but also additional prudential requirements. These include reporting of contractual maturity mismatches, concentration reporting, reporting related to

⁹⁴ BCBS, *Basel III liquidity standards*, *supra* note 2, at ¶ 50.

⁹⁵ *Id.* at ¶ 111.

⁹⁶ *Id.* at ¶ 120-121.

⁹⁷ *Id.* at 122-128.

available unencumbered assets (which might be needed under stress), and market-risk monitoring standards.⁹⁸

C. U.S. Regulatory Action Related to Liquidity Risk

Apart from the progress of international regulators on liquidity risk, the U.S. has established its own framework of robust standards that do not rely on the untested and questionable LCR and NSFR ratios. The U.S. began this process with an interagency proposal in 2009⁹⁹ that led to final liquidity-risk management standards in 2010.¹⁰⁰ This guidance was followed up in 2011 with a proposal for still tougher stress-testing for bank holding companies (“BHCs”) with assets over \$10 billion¹⁰¹ and an even more stringent proposed rule from the Federal Reserve covering BHCs with assets over \$50 billion.¹⁰² Although both of these more recent proposals are in large part focused on capital, each also addresses liquidity, considering it in connection with forward-looking capital resilience and the array of other risks (e.g., operational and market risk) that may at times be even more important than capital adequacy and liquidity.

While the U.S. has tried to adopt a comprehensive rulemaking approach, the Basel III rules treat capital, liquidity, operational and market risk – the only ones covered to date with formal standards – in “silo” fashion. That is, each of these rules is freestanding and mandated as if none of the others were in place or as if any of the other risks covered in these rules have inter-related effects that require a synoptic approach to effective enterprise-wide risk management.

Another key difference between the U.S. liquidity rules to date and the global approach is that many U.S. liquidity-risk standards apply to all insured depositories, not just to internationally active ones (although tougher standards are reserved for the biggest BHCs). As a result, they provide greater protection not just to financial markets, but also to the FDIC’s Deposit Insurance Fund and broader regulatory considerations, rightly addressing the fact that, under stress, even seemingly small institutions can create systemic risk.

⁹⁸ *Id.* at ¶¶ 137-183.

⁹⁹ Office of the Comptroller of the Currency, Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, National Credit Union Administration, *Proposed Guidance on Funding and Liquidity Risk Management*, 74 Fed. Reg. 127 (July 6, 2009), available at <http://edocket.access.gpo.gov/2009/pdf/E9-15800.pdf>.

¹⁰⁰ Office of the Comptroller of the Currency, Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, National Credit Union Administration, *Final Policy Statement on Funding and Liquidity Risk Management*, 75 Fed. Reg. 54 (Mar. 22, 2010), available at <http://edocket.access.gpo.gov/2010/pdf/2010-6137.pdf>.

¹⁰¹ Office of the Comptroller of the Currency, Federal Reserve System, FDIC, *Proposed Guidance on Stress Testing for Banking Organizations With More Than \$10 Billion in Total Consolidated Assets* 76 Fed Reg. 115 (June 15, 2011), available at <http://www.gpo.gov/fdsys/pkg/FR-2011-06-15/pdf/2011-14777.pdf>.

¹⁰² Federal Reserve System, *Proposed Rule to Require Large Bank Holding Companies to Submit Capital Plans to the FRB on an Annual Basis* 76 Fed Reg. 117 (June 17, 2011), available at <http://www.gpo.gov/fdsys/pkg/FR-2011-06-17/pdf/2011-14831.pdf>.

In addition, the U.S. rules incorporate a strong mandate for corporate governance, directing boards of directors and senior management to take a hands-on role in this area through actions such as approving risk tolerances, ensuring that liquidity-risk standards meet these tolerances, validating performance and holding senior management accountable for it. The 2010 guidance incorporates in clear-binding form a recommendation from senior supervisors around the world that boards of directors set the “risk appetite,”¹⁰³ requiring boards of directors to establish risk tolerances and other parameters related to liquidity risk, with senior management then charged with implementing and reporting on these board-directed limits and policies. As emphasized in an array of recent global statements, the U.S. guidance also stipulates internal controls through independent risk management, with line management also given a far greater role both in budgeting for liquidity risk (e.g., through pricing) and in being held responsible for compliance with board and management standards.

Finally, it is important to note that the U.S. standards do not disadvantage obligations of government-sponsored enterprises (GSEs), granting recognition of the ready market value of agency securities that is not, as shall be discussed in more detail in Section III, appropriately reflected in the Basel III standards.

¹⁰³ Senior Supervisors Group (“SSG”), *Observations on Developments in Risk Appetite Frameworks and IT Infrastructure* (Dec. 23, 2010), available at <http://www.newyorkfed.org/newsevents/news/banking/2010/an101223.pdf>.