

BRIEFING NOTE

NOVEMBER 2011

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Liquidity Management under Basel III: A Briefing Note

Introduction

The financial crisis has moved liquidity management centre stage for banks and their regulators. The new Basel III regulatory framework has created significant challenges and opportunities for risk managers, finance managers and Basel III project teams. This briefing note outlines how liquidity compliance and monitoring fit within the Basel III framework and explores some of the challenges in implementing the requirements. It also proposes some best practice initiatives that can help banks implement Basel III in a way that drives greater efficiencies and insight, as well as delivering compliance.

Background

Liquidity is defined as the ability for banks to efficiently meet their current and future obligations, without affecting the daily operation or financial condition of the firm. Liquidity was central to the banking crisis of 2008, as many solvent banks were denied access to short term interbank lending that many had built their business models on. Unable to secure adequate liquidity, some banks were forced to seek additional funding from outside investors or from governments. Others went into liquidation.

The consequences of the crisis spurred the Bank of International Settlements (BIS) to enhance the Basel II framework, incorporating many developments including liquidity compliance, to create Basel III.

Liquidity and Basel III

The requirements covering liquidity under Basel III are designed to ensure that banks are able to survive significant short term shocks. It also provides an incentive to encourage banks to use more stable forms of medium and long term funding in their business model.

Basel III introduces two key liquidity standards that need to be calculated and reported to supervisors.

a) Liquidity Coverage Ratio (LCR)

This is defined as:

$$\text{LCR} = \frac{\text{Stock of High Quality Liquid Assets}}{\text{Net Cash Outflow Over 30 Days}} \geq 100\%$$

This means that the bank must ensure that the excess of outflows over inflows over a rolling 30 day calendar period does not exceed the amount of high quality liquid assets available to the bank. These liquid assets cover cash, specified types of sovereign debt, as well as other high quality public and corporate debt.

The observation period for LCR begins in 2011 and will become a compliance requirement in 2015.

These assets must be unencumbered, so they cannot be used as collateral for other loans or hedges. They must be freely available to the entire group covered by the LCR and be managed by the liquidity risk management function – typically treasury. Moreover, these assets need to be liquidated periodically to prove their liquidity.

The Net Cash Outflow is calculated on the basis of a stressed scenario, which is similar in scale to the 2008 banking crisis. This is defined in 'Basel III: International Framework for liquidity risk, measurement and monitoring' (BIS, Dec 2010) and outlined below:

- a) the run-off of a proportion of retail deposits
- b) a partial loss of unsecured wholesale funding capacity
- c) a partial loss of secured, short-term financing with certain collateral and counterparties
- d) additional contractual outflows that would arise from a downgrade in the bank's public credit rating by up to and including three notches, including collateral posting requirements
- e) increases in market volatilities that impact the quality of collateral or potential future exposure of derivative positions and thus require larger collateral haircuts or additional collateral, or lead to other liquidity needs
- f) unscheduled draws on committed but unused credit and liquidity facilities that the bank has provided to its clients
- g) the potential need for the bank to buy back debt or honor non-contractual obligations in the interest of mitigating reputational risk.

b) Net Stable Funding Ratio (NSFR)

The Net Stable Funding Ratio complements the LCR and focuses on the medium and long term source of funding for banks. NSFR is defined as:

$$\text{Net Stable Funding Ratio} = \frac{\text{Available Stable Funding}}{\text{Required Stable Funding}} \geq 100\%$$

The NSFR requirement means that illiquid loans to customers, with maturities of 12 months or more, need to be matched with funding from internal or external sources with a similar maturity rather than by short term inter-bank lending.

Available Stable Funding (ASF) refers to the reliability of the sources of funding over a one-year horizon. Required Stable Funding (RSF) refers to the value of assets that require funding.

The precise calculations for both ASF and RSF are weighted to reflect the degree of stability of existing liabilities (under ASF) and the level of support a supervisor believes an asset requires (under RSF).¹

Furthermore these calculations are subject to a stressed scenario shown below:

- A significant decline in profitability or solvency arising from heightened credit risk, market risk or operational risk and/or other risk exposures
- A potential downgrade in a debt, counterparty credit or deposit rating by any nationally recognized credit rating organization and/or
- A material event that calls into question the reputation or credit quality of the institution.

Source: Basel III: International framework for liquidity risk measurement, standards and monitoring (BIS, Dec 2010).

The observation period for NSFR runs until 2018, when it becomes a compliance requirement.

The data management implications for banks calculating both LCR and NSFR are significant. Collecting, consolidating and reporting the liquidity data in a constantly changing market, with ever-changing inflows and outflows represents an immense data management challenge for a bank. Many bank systems have developed haphazardly, often through mergers, so there are multiple, disconnected databases that contain the critical liquidity information, from collateral management to loan systems. This structure will prove inadequate in providing fast, accurate liquidity reports at a cost the business can justify.

¹A more detailed description of the type of assets and liabilities, together with their associated ASF and RSF factors is available in 'Basel III: International Framework for liquidity risk, measurement and monitoring' (BIS, Dec 2010).

Furthermore the capital items associated with NSFR also form part of the bank's tier 1 and tier 2 calculations for regulatory capital requirements under Basel III. This clearly highlights the interactions between the different parts of the Basel III framework.

Monitoring Tools

As well as reporting LCR and NSFR, banks need to calculate and report a range of different metrics, known as monitoring tools, which provide a consistent toolset for banks and regulators looking to monitor specific issues.

No specific values are attached to these measures for regulatory purposes, however banks need to calculate and report these reports at least monthly and weekly in a crisis.

Monitoring Tools	
a) Contractual Maturity Mismatch	The mismatch profile identifies the gap between the contractual inflows and outflows of liquidity for specific time periods.
b) Concentration of Funding	This identifies the sources of wholesale funding whose scale could cause liquidity problems if they were withdrawn.
c) Available Unencumbered Assets	This provides information about a bank's available unencumbered assets that potentially could be used as additional collateral to raise additional secured funding.
d) Market-related Monitoring Tools	Real time or near real time market, sector and bank specific data that can provide additional insight to highlight potential liquidity issues.

Like the LCR and NSFR, reporting these metrics will be a challenge in a changing business and a changing market. Collecting, consolidating, calculating and reporting these metrics will require significant effort and resource.

What is the impact of these regulations on banks?

The impact on banks of these liquidity requirements, alongside the other demands imposed by Basel III will be significant. This is reflected in the long time before both ratios become mandatory. As well as the challenges of collecting, consolidating and reporting the data, banks have to consider the impact of liquidity ratios on their business models and to prepare to make the necessary adjustments. Banks will also need to embed the principles of liquidity compliance and monitoring into their business planning and decision-making processes, forcing them to consider the potential consequences of any business initiative (for example offering a new product or entering into a new business) on the liquidity profile of the institution.

The Key Challenges for Managing Liquidity under Basel III

The key challenges of managing liquidity centre on capturing the right liquidity data, ensuring its accuracy and reporting it to the business and the regulator. Underpinning these challenges is the issue of how best to deliver a management framework that meets the demands of the business and the regulator. The conflicting demands of business and regulator have grown under Basel III and will continue to grow as regulators take a more interventionist approach to prevent another global banking crisis. Resolving these conflicts will oblige most banks to significantly enhance their liquidity management processes, or else be left at a competitive disadvantage.

1.) Data Capture and Consolidation

Liquidity management has always been an essential management function of banks. What the banking crisis highlighted was that some banks had placed liquidity management at the centre of their risk management thinking, with resources and processes to match, whilst others were less conservative, relying on short-term borrowing to bridge any liquidity gaps.

Effective liquidity management requires banks to capture a wide array of data to monitor their liquidity, including market data, assets, liabilities, off-balance sheet items, counterparties, data on collateral as well as credit ratings. This data generally lies in different systems across the businesses: from asset liability management (ALM) to collateral management systems.

The emergence of Basel III accelerates the need for risk and finance integration, especially regarding data management. Identifying and resolving any data gaps in liquidity monitoring will be a significant factor in deciding if a migration to Basel III is successful and delivered on time.

Financial institutions that will be leading the path towards integration will benefit the most from their investment. The key to successful (and cost effective) liquidity reporting under Basel III will be to build this centralized data infrastructure, so that all of the data critical to calculating the liquidity ratios is easily available.

Whether a bank chooses to consolidate all its myriad data systems into one vast database, or more likely, extract all the data into a separate datamart to calculate liquidity ratios, it is imperative that all the data is easily accessible in one place to deliver the accuracy and speed supervisors demand.

2.) Data Quality and Reconciliation

Building on the foundations of a consolidated data set, it is vital to ensure that all the data is of sufficient quality. The dataset needs to be validated to highlight errors and omissions that must be corrected. It also needs to ensure that it retains its integrity before, during and after the vital liquidity calculations are made, to demonstrate to management and supervisors alike that all the essential data is fully captured in the calculations and the results.

3.) Reporting the Results

The reporting regime for all aspects of Basel III is complex. The need, for example, to calculate liquidity gaps, deliver trend analysis across multiple reporting dates and data, concentration of funding, as well as the LCR and NSFR ratios will be a challenge for the most well organized bank.

Banks will also need to be able to accommodate the demands of group reporting in the locations where they are domicile and solo reports in the locations in which they operate. These reports need to be in the right format (for both Pillar 1 & 3 reports), be consistent and be created at the right time, which will vary across the world.

The volume and detail of reporting under Basel III will be significantly greater than under Basel II, which may put a bank's existing reporting process under intolerable pressure. These factors may force banks to change their reporting solution so that they ensure they deliver, cost effectively, the right report, to the right regulator at the right time.

4.) Stress Testing and Contingency Planning

Banks have always understood the importance of stress testing, but again the banking crisis demonstrated that some banks used stress testing more widely than others to understand how adverse events may affect their profitability or even their solvency.

Regulators now highlight much more the importance of stress tests. Banks are required to go beyond the minimum requirements set for LCR and NSFR and need to report the results of their own stress tests to their regulator. This process is moving stress testing away from a narrow 'box-ticking' compliance issue, towards being an essential element of a broader, enterprise risk management model.

As well as reviewing the LCR and NSFR ratios (using stressed metrics) and the liquidity information provided by the monitoring tools, supervisors will seek to understand the contingency plans banks have in place to recover from significant market events.

Accurate stress test results require accurate information to deliver the confidence that management and regulators demand. The vast quantities of data involved will mandate a unified data source that manages both the data and the scenarios necessary to calculate the ratios and other information needed by the supervisors.

The solution should also be designed to help the financial institution to document and track changes to stress testing methodologies and assumptions, as well as contingency funding plans.

5.) Managing Liquidity and Delivering Compliance

Basel III implementation should not be viewed as a 'box-ticking' exercise to comply with regulations. Delivering liquidity compliance under Basel III cannot be achieved in isolation from a bank's need to manage its liquidity for business purposes – both elements need to be managed in a coherent manner.

Using an integrated solution in which the impact of business decisions on regulatory metrics can be proactively measured is a good way to achieve that goal.

Creating the right solution that serves the needs of the business in terms of flexibility, openness, speed, accuracy and above all cost, as well as the needs of the regulator should be at the forefront of any banking executive looking to implement Basel III.

Best Practice Basel III Liquidity Management

Clearly implementing liquidity management under Basel III presents significant challenges to all banks, but they are surmountable if managers think through their options and requirements carefully. There are several best practice considerations that will help banks formulate their ideal solution for managing liquidity under Basel III.

1.) Out-of-the-Box

The more the solution that a bank deploys to meet its regulatory demands in an 'out-of-the-box' solution – without the need for extensive customization and coding – the better for the bank. It reduces costs and allows staff and other resources to be focused on revenue generating activities. The solution needs to be sufficiently flexible to meet the current and future regulatory and operational requirements of a bank, rather than acting as a functional straight jacket.

2.) See the Big Picture and the Smallest Detail

As mentioned before, understanding a bank's liquidity position is not simply a question of calculating and reporting the LCR and NSFR ratios to a regulator. To fully understand, and capitalize on its liquidity management, a bank needs the ability to see the big picture, to understand the major themes and at the same time have the capacity to understand in depth the data that underpins that bigger picture. This will provide the greatest insight into the bank's liquidity position, giving its management more decision making options and its supervisors more confidence.

3.) Use a Single Source of the Truth

The speed, scope and scale of managing liquidity under Basel III demands a single source of data. The significant demands of data management and complex liquidity calculations amid a changing business and market means that trying to deliver results on time, using multiple databases in multiple locations, is time consuming, prone to error and more costly. The most cost effective solution will be a single unified datamart that can collect the information, perform the calculations, report the results and manage the bank's liquidity position.

This 'single source of truth' drives enhanced data quality management which is at the heart of the whole Basel III compliance process. It allows banks to define the critical liquidity data and ensures it meets the right standards. It highlights and resolves errors quickly and maintains the overall quality of the liquidity data required both by the business and regulator, ideally at a reducing cost.

Ideally this 'single source of truth' for liquidity should be the one built for Basel II capital adequacy projects, building a path towards an enterprise-wide risk management system. This ensures that the migration from Basel II to Basel III is as smooth as it can be.

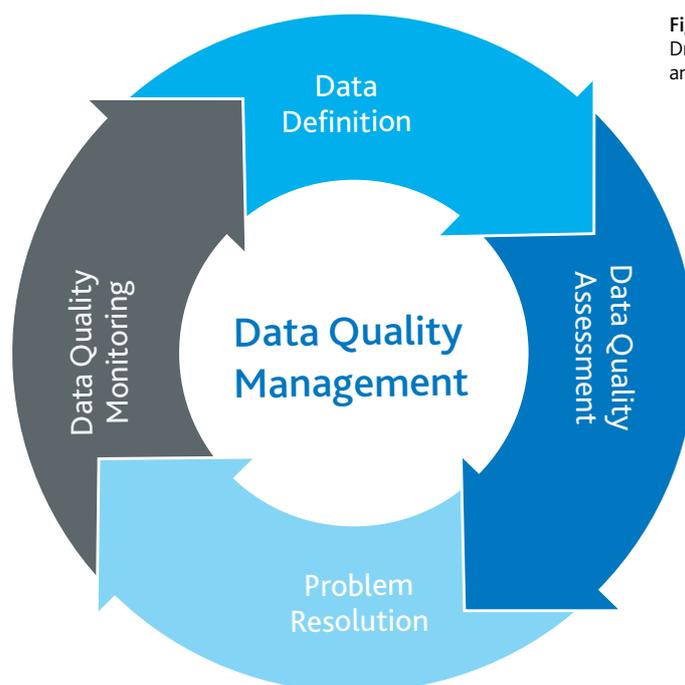


Figure 1: Single Source of Data:
Drives data quality management
and cost effectiveness

4.) Openness, Flexibility and Integration

The new liquidity management requirements will affect all banks, irrespective of how they currently manage their liquidity. New systems and processes will have to be implemented, although the effort needed to meet the new requirements will vary between banks. Some banks will merely need to add (or replace) specific elements needed to meet the obligations, whether it be a calculation engine, a stress testing module or a reporting tool. Others will need to take a more comprehensive, integrated approach, potentially replacing their existing liquidity management and regulatory capital management systems. The key to a speedy implementation, is having a solution that is easily integrated into a wide range of other systems and which can be easily configured to meet the requirements of Basel III, as banks and the regulations evolve.

5.) Efficient Liquidity Reporting

Managing and delivering regulatory reports is complex and onerous especially for internationally active financial institutions dealing with multiple regulators, but implemented the right way, it can be done systematically and efficiently. However this important issue is approached, it needs to be able to handle the multiple formats demanded by supervisors and be comprehensive enough to accommodate the demands of both consolidated and local reports. Furthermore the reporting templates need to be regularly updated as individual reporting requirements change. The whole process needs to be streamlined and efficient to reduce the cost of compliance to the bank.

6.) Leveraging Basel III Beyond Regulatory Compliance

Delivering a compliant liquidity environment can provide a solid foundation, not only for managing liquidity more effectively, but also for other areas of business management including portfolio management, loan origination and product management. For example incorporating the liquidity perspective into product development and product pricing can allow a bank to exploit profitable niches more effectively than its competitors.

Furthermore the 'broad and deep' data model can provide can deliver a decision support infrastructure that allows senior banking management a deep, holistic grasp of their business. It allows them to generate fully risk-informed strategic options for the bank, with a complete understanding of how strategic developments in the direction of the business will impact its profitability and development.

Conclusion

The migration from Basel II to Basel III is more complex than many banks realize. The many operational demands that Basel III places on banks – the need for enhanced data management, the standardized requirements for liquidity compliance and stress testing, as well as more complex reporting requirements – are potentially being underestimated.

Delivering liquidity compliance, as part of an overall Basel III compliance program is a significant challenge, that will face all banks. However, despite this, there is plenty of potential for banks to recognize this situation as an opportunity to streamline their liquidity management processes, potentially update their business model and use the deeper business insight this gives them to thrive in a post crisis banking world.

About Moody's Analytics Liquidity Management Solutions

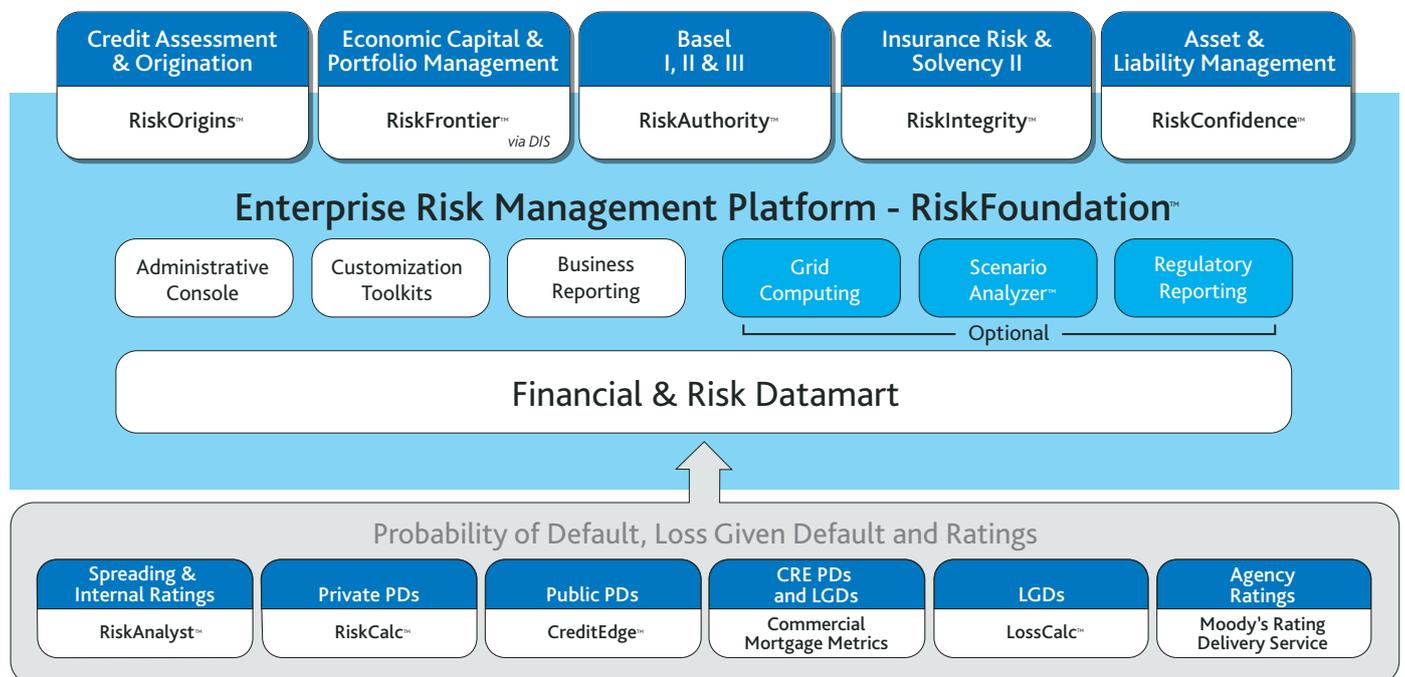
RiskAuthority Liquidity Compliance Module – Complete Basel III Ratio Calculations (LCR and NSFR)

RiskAuthority Liquidity Compliance offers comprehensive compliance with Basel III liquidity risk requirements. It allows banks to calculate the new Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR) and all the relevant risk indicators required to populate Basel III regulatory Pillar 1 and 3 risk reports as outlined in the BCBS December 2010 Paper entitled Basel III: International framework for liquidity risk measurement, standards and monitoring. With RiskAuthority Liquidity Compliance, you can be confident that you are managing your organization's regulatory liquidity requirements, on time, every time. RiskAuthority supports over 50 national supervisors to allow you to manage all of your multijurisdictional regulatory requirements.

RiskConfidence Liquidity Monitoring

RiskConfidence, Moody's Analytics enterprise asset and liability management software solution, goes beyond the traditional ALM feature set by creating a high value front office balance sheet management function that enables firms to evaluate efficient portfolios in order to maximize risk-adjusted returns. RiskConfidence incorporates interest rate risk management, credit risk management, liquidity risk management, capital management, and performance measurement.

Managing Your Risk Across the Enterprise



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