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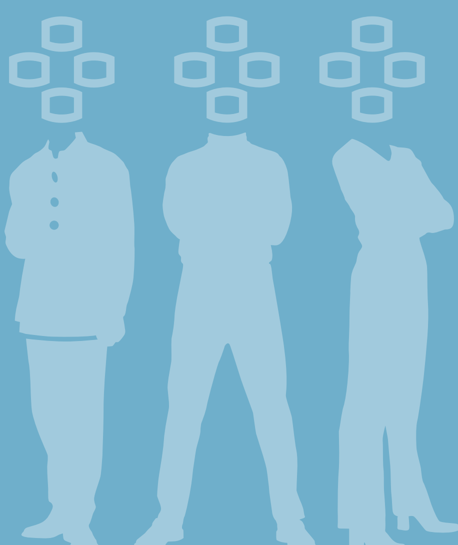
# Basel III Liquidity Risk Monitoring

## Business Model and IT Infrastructure Impacts



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# Basel III Liquidity Risk Monitoring

## Business Model and IT Infrastructure impacts

*By Richard Filippi, Headstrong*

### Introduction

Basel III will introduce a wealth of new regulations and reforms that will change how firms operate in very fundamental ways. Understanding how these operational changes will impact the business is critical to ensuring success. To better understand these implications, this paper will delve into some of the most pertinent issues surrounding Basel III Liquidity Risk Measurements and the associated impact on IT infrastructure.

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**Basel III, in combination with related regulatory changes will substantially alter business models and the infrastructure required to support them. Firms who rethink their strategy and supporting technology now will have a distinct competitive advantage over those who do not.**

• • •

There are many new rules and requirements for gathering and measuring liquidity risk within a firm. More importantly, from an IT infrastructure standpoint, the required reporting will only increase in frequency until requirements for daily complex reporting are permanently in place. The other aspect of significant concern will be the nuances (additional regulatory requirements and their cascading impacts) created by various governmental regulatory authorities under their national discretion.

### BASEL III Requirements and Ratios

Building on Basel II, Basel III will require the following:

- Higher and better quality of capital for banks by greater reliance on equity.
- An internationally harmonized leverage ratio to constrain excessive risk taking.
- Contains Liquidity measurement and stress testing standards.
- More of a qualitative as well as quantitative focus on scoring and metrics.
- Greater regulatory supervision.

One of Basel II's biggest weaknesses was that it placed too great of an emphasis on capital and not enough on liquidity. Furthermore, regulators generally were accommodating of the firms' internally derived stress tests for both capital and liquidity. Both banks and regulators were accommodating in outsourcing credit to the rating agencies, the results of which are illustrated in Figure 1 below.

| FIRM | Distress Date | Moody's | S&P | Fitch |
|---|---|---|---|---|
| Bear Stearns | 3/16/08 | A2 | A | A+ |
| Fannie Mae | 9/7/08 | Aaa/B- | - - | AAA |
| Freddie Mac | 9/7/08 | Aaa/B- | - - | AAA |
| Lehman | 9/15/08 | A2 | A | A+ |
| AIG | 9/15/08 | Aa3 | AA- | AA- |
| Merrill Lynch | 9/15/08 | A2 | A | A+ |
| WAMU | 9/25/08 | Baa3 | BB- | BBB- |
| Wachovia | 9/29/08 | Aa2 | AA- | AA- |
| Fortis | 9/29/08 | A1 | A | AA- |
| Dexia Bank | 9/30/08 | Aa2 | AA | AA |

**Figure 1: Ratings One Month Prior to Default**

**_Focus on liquidity:_**

With Basel III and other regulations we will witness a rapid, and quite possibly a painful evolution in the regulatory environment as countries use their individual regulatory power to create rules to implement new standards for obtaining access to cash, as well as ratios and governance of liquidity and its associated Stress Testing. Some countries intend to have these liquidity measurements at a subsidiary level or even as the UK has proposed, at a branch level. This will require defined funding sources for each subsidiary and possibly branch rather than on an aggregate corporate level.

One of the greatest risks facing the industry is the potential of having to deal with a regulatory framework that is disorganized and lacks industry-wide standards.

These developments will drive banks to carefully control and consider the cost impacts on various strategic initiatives.

In 2010, the Basel Committee conducted an impact study of the effect of new liquidity requirements and capital rules. Based on the findings of that study, banks will have to assess the strategic business models and the potential cost of particular product lines and offerings.

In the US, this will result in further complications, as the regulatory framework arising from the implementation of the Dodd-Frank Act begins and other nations introduce their own regulations being imposed from other nations.

When we think back about how firms have organized themselves, they have been primarily driven by regulatory or tax considerations. In the future, some if not all of these drivers will have to be rethought and possibly re-engineered in light of the new regulatory backdrop.

**_Two new liquidity measurement ratios_**

There will be an emphasis on two new ratios under Basel III, they are analogous to the Current and Quick Ratios we are all familiar with in financial analysis. The Basel Committee has prescribed runoff rates and haircuts associated with the ratios.

The Liquidity Coverage Ratio is comparable to the Current Ratio measurement for corporations to ensure they have sufficient liquidity to meet the current obligations due. The Net Stable Funding Ratio is comparable to the Quick Ratio as it limits the items selected to measure stress in liquidity.


**Figure 2: The new Liquidity Ratios are an attempt to make financial institutions plan for the following sample scenario:**

***Liquidity Coverage Ratio (LCR)***

This standard 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 liquidity stress scenario specified by supervisors. At a minimum, the stock of liquid assets should enable the bank to survive until Day 30 of the stress scenario, by which time it is assumed that appropriate corrective actions can be taken by management and/or supervisors, and/or the bank can be resolved in an orderly way.

The final rules introduce this ratio by currency as a new monitoring tool. As it is not a standard, there are no thresholds defined as of yet.  Regulators may have left this undefined to prevent banks from gaming the results or they may simply want to see where the ratio falls. The requirements to report this ratio by currency will increase the data and reporting requirements of financial institutions.

The ratio is defined as:

$$\frac{\text{Stock of high quality liquid assets}}{\text{Total net cash outflows over the next 30 calendar days}}$$

Assets are considered high-quality if they can be easily and immediately converted to cash with little or no loss in value.  The regulation also assigns a haircut to Level 2 assets. The Basel Committee allows national supervisors to require one for Level I assets.

The total net cash outflows for the scenario are to be calculated for 30 calendar days into the future. 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 are expected to meet this requirement continuously and hold a stock of unencumbered, high-quality liquid assets as a defense against the potential onset of severe liquidity stress. Given the uncertain timing of outflows and inflows, banks and supervisors are also expected to be aware of any potential mismatches within the 30-day period and ensure that sufficient liquid assets are available to meet any cash flow gaps throughout the period.

The scenario for this standard entails a combined idiosyncratic and market-wide shock that would result in run-off of a proportion of retail deposits, a partial loss of unsecured wholesale funding capacity along with six other shocks to be considered.

***The Net Stable Funding Ratio (NSFR)***

This ratio is intended to promote increased medium and long term funding of assets and activities. The NSFR standard is structured to ensure that long term assets are funded with a minimum amount of stable liabilities in relation to their liquidity risk profiles. The NSFR aims to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and encourage better assessment of liquidity risk across all on-balance sheet and off-balance sheet items. In addition, the NSFR approach offsets incentives for institutions to fund their stock of liquid assets with short-term funds that mature just outside the 30-day horizon for that standard.

The ratio is defined as:

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} > 100\%$$

The methodology includes required amounts of stable funding for all illiquid assets and securities held, regardless of accounting treatment (e.g. trading versus available-for-sale or held-to-maturity designations). Additional funding stable sources are also required to support at least a small portion of the potential calls on liquidity arising from off-balance sheet (OBS) commitments and contingencies.

### *New Data and Technology Infrastructure Requirements*

One of the most important issues related to these new regulations is that banks must now re-examine their existing infrastructure and technology. Often, management objects to the need for new technology when existing infrastructure is currently adequate and paid off. However, would you drive a 1975 eight cylinder auto even though it is fully paid for with gas at $5.00 per gallon? The carrying cost is only a small consideration, but the larger issue is whether this car will get you where you want to go. Financial services is more like a race than a steady walk to the finish line. Those who make the right investments will most certainly win.

A typical Basel III reporting infrastructure must be capable of producing:

- detailed contractual cash flows,
- over multiple time dimensions,
- by legal entity,
- in native and home base currencies,
- aligned to specific legal entities (and possibly branches)
- at increasingly frequent intervals

This intensive, high volume level of reporting will demand a completely new approach to data sourcing and management. It will also require significant enhancements to IT infrastructure.

In December 2010 the Senior Supervisors Group (SSG), senior financial supervisors from ten countries, issued a report on risk appetite frameworks and IT infrastructure.

"The report—***Observations on Developments in Risk Appetite Frameworks and IT Infrastructures***—concludes that while firms have made progress in developing risk appetite frameworks and have begun multiyear projects to improve IT infrastructure, considerably more work must be done to strengthen these practices. In particular, the aggregation of risk data remains a challenge, despite its criticality to strategic planning, decision making and risk management."

The report emphasized the importance of implementing an all-inclusive risk data infrastructure that includes "consolidated platforms and data warehouses that are required to use comprehensive taxonomies. The report emphasized the need to report data on a legal entity as well as by line of business. Establishing this sort of holistic view of risk data will not only provide a critical head start with respect to dealing with the coming regulation, but can provide insights that will improve a firm's competitive advantage now. For example, in a business divided into silos, the credit department may be brought into the new product approval or trade process only as an afterthought for an opinion or even later as part of a request to monitor the risk. In past years, and in less demanding regulatory environments, "good enough" seemed fine. In the current environment, improvements in infrastructure will soon be demanded and first mover advantage is tremendous.

## Summary

### *Strategic Implications*

Banks and financial institutions need to be proactive to quickly gain a footing in this new environment of aggressive regulatory reform and tight liquidity rules. Going forward we can expect a rapid change in the regulatory framework as countries move to create and impose their particular version of Basel regulations around governance, stress testing, as well as liquidity risk management. This may very well lead to a patchwork of regulations each with a different version of requirements for liquidity pools in different markets.

These developments will have to be managed carefully by each bank. Each activity must be tracked and assessed for impacts of the cost for each existing business model and potential future ones.

**_Key Client Concerns_**

### *Integrating silos*

There are significant data aggregation and underlying system challenges to produce granular group-wide liquidity stress testing, especially on a less than monthly basis.

***Ask yourself:*** How long will it take to do this the right way in our firm?

### *Complicated stress testing*

Rules have introduced a number of new assumptions for stress testing. Additionally, breakdown of liquidity by business lines will be expected as well as the accruing of its associated cost or benefit.

***Ask yourself:*** Are our systems capable and flexible enough to deal with a variety of stress testing requirements at various levels of granularity?

### *Technology managed risk*

Technology and risk measurements are joined at the hip and cannot be addressed separately.

***Ask yourself:*** Is technology a function-level tool or a strategic driver in our organization?

### *The spirit, versus the letter of regulation*

Regulators are expecting banks and institutions to develop enterprise wide infrastructure that directly supports their strategic decision making and prudent risk management.

***Ask yourself:*** Will your current infrastructure provide this level of guidance?

### *Changing business models*

New Capital, leverage and liquidity calculations will fundamentally alter the business model we have come to know.

***Ask yourself:*** Do you want to be at the forefront of changing business models or have to play catch-up later?

## Appendix

| Item | Factor (to be multiplied against total amount) |
|---|---|
| **Stock of high-quality liquid assets** | |
| ***A. Level 1 assets:*** | |
| Cash | 100% |
| Qualifying marketable securities from sovereigns, central banks, public sector entities, and multilateral development banks | 100% |
| Qualifying central bank reserves | 100% |
| Domestic sovereign or central bank debt in domestic currency | 100% |
| Domestic sovereign debt for non-0% risk weighted sovereigns, issued in foreign currency | 100% |
| ***B. Level 2 assets:*** | |
| Sovereign, central bank, and PSE assets qualifying for 20% risk weighting | 85% |
| Qualifying corporate bonds rated AA- or higher | 85% |
| Qualifying covered bonds rated AA- or higher | 85% |
| Calculation of 40% cap of liquid assets | Maximum of 2/3 of adjusted Level 1 assets that would exist after an unwind of all secured funding transactions, as in paragraph 36. |
| **Total value of stock of highly liquid assets** | |
| ***Cash Outflows*** | |
| ***A. Retail deposits:*** | |
| Demand deposit and qualifying term deposits with residual maturity or notice period within 30 days | |
| Stable deposits | Minimum 5% (additional categories to be determined by jurisdiction) |
| Less stable retail deposits | Minimum 10% (additional categories to be determined by jurisdiction) |
| Term deposit with residual maturity greater than 30 days with a withdrawal with a significant penalty, or no legal right to withdraw | 0% (or higher rate to be determined by jurisdictions) |
| ***B. Unsecured wholesale funding:*** | |
| Funding from: | |
| Stable small business customers | Minimum 5% (additional categories to be determined by jurisdiction) |
| Less stable small business customers | Minimum 10% (additional categories to be determined by jurisdiction) |
| Legal entities with operational relationships | 25% of deposits needed for operational purposes |
| **Portion of corporate deposits with operational relationships covered by deposit insurance – same treatment as for retail demand deposits** | |
| Cooperative banks in an institutional network | 25% of the qualifying deposits with the centralised institution |
| Central banks and PSEs | 75% |
| Other legal entity customers | 100% |
| ***C. Secured funding:*** | |
| Secured funding transactions backed by Level 1 assets, with any counterparty | 0% |
| Secured funding transactions backed by Level 2 assets, with any counterparty | 15% |
| Secured funding transactions backed by assets that are not eligible for the stock of highly liquid assets, with domestic sovereigns, domestic central banks, or domestic public sector entities as a counterparty | 25% |
| All other secured funding transactions | 100% |
| ***D. Additional requirements:*** | |
| Liabilities related to derivative collateral calls related to a downgrade of up to 3-notches | 100% of collateral that would be required to cover the contracts in case of up to a 3-notch downgrade |
| Market valuation changes on derivatives transactions | Treatment determined by supervisors in each jurisdiction |
| Valuation changes on posted collateral securing derivative transactions that is comprised of non-Level 1 assets | 20% |
| **ABCP, SIVs, Conduits, etc:** | |
| Liabilities from maturing ABCP, SIVs, SPVs, etc | 100% of maturing amounts and 100% of returnable assets |
| Asset Backed Securities (including covered bonds) | 100% of maturing amounts |
| Currently undrawn portion of committed credit and liquidity facilities to: | |
| Retail and small business clients | 5% of outstanding credit and liquidity lines |
| Non-financial corporates, sovereigns and central banks, and PSEs; credit facilities | 10% of outstanding credit lines |
| Non-financial corporates, sovereigns and central banks, and PSEs; liquidity facilities | 100% of outstanding liquidity lines |
| Other legal entity customers, credit and liquidity facilities | 100% of outstanding credit and liquidity lines |
| Other contingent funding liabilities (such as guarantees, letters of credit, revocable credit and liquidity facilities, derivative valuations, etc) | Treatment determined by supervisors in each jurisdiction |
| Any additional contractual outflows | 100% |
| Net derivative payables | 100% |
| Any other contractual cash outflows | 100% |
| **Total cash outflows** | |
| **Cash Inflows** | |
| Reverse repos and securities borrowing, with the following as collateral:<br>• Level 1 assets<br>• Level 2 assets<br>• All other assets | <br>0%<br>15%<br>100% |
| Credit or liquidity facilities | 0% |
| Operational deposits held at other financial institutions | 0% |
| Deposits held at centralized institution of a network of co-operative banks | 0% of the qualifying deposits with the centralized institution |
| **Other inflows by counterparty:** | |
| Amounts receivable from retail counterparties | 50% |
| Amounts receivable from non-financial wholesale counterparties, from transactions other than those listed in the inflow categories above. | 50% |
| Amounts receivable from financial institutions, from transactions other than those listed in the inflow categories above. | 100% |
| Net derivative receivables | 100% |
| Other contractual cash inflows | Treatment determined by supervisors in each jurisdiction |
| **Total inflows** | |
| **Total net cash outflows = Total cash outflows minus min [total cash inflows, 75% of gross outflows]** | |
| **LCR (= Total value of stock of high-quality liquid assets / Net cash outflows)** | |

Table Contents from the Basel Committee on Banking Supervision

## About Headstrong

Headstrong is a global consulting and IT services company with a specialized focus in capital markets. With three decades of domain expertise, Headstrong is the world's leading offshore outsourcing company for the financial services and securities industry.

Headstrong delivers targeted domain solutions and a full complement of services, from strategy and business consulting to technology and operations, using multi-shore resources and global project management tools, methods and standards. Headstrong maintains operations in seven countries, with extensive offshore and nearshore capabilities and 4,000 employees globally.

Our parent company, Genpact, offers an industry leading set of services that enable us to create transformative change for our clients. Our expanded global footprint allows us to deliver from more locations and our overall scale gives us the ability to staff projects more quickly with exactly the right people. For more information, visit **www.headstrong.com** or e-mail at **information@headstrong.com**.

## About the Author

**Richard Filippi – Managing Consultant: Headstrong's Domain Consulting Risk & Compliance Group**
Richard is an accomplished professional with over 25 years of providing Capital Markets and Lending Credit expertise at several of the world's leading global banks. Having led large-scale, multi-country IT change programs, Richard provides leadership and action in dynamic business situations. Richard is particularly adept at developing talent with the client's staff. He is a firm believer in the value of human capital and is committed to making the people around him more successful.

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