

# Liquidity Risk

Challenges of Navigating a Clear Path during a Crisis

ORACLE WHITE PAPER





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## Introduction

Liquidity risk gained unprecedented notoriety during the global financial crisis. The world community watched in disbelief as liquidity evaporated in a matter of days, thus forever changing the face of the financial services industry.

These startling events underscored several important messages:

- » Liquidity crises can, and frequently do, emerge with little warning and can spiral rapidly out of control.
- » Liquidity and capital solvency are inextricably linked and cannot be assessed and managed independently.
- » Insight and agility are paramount in the event of a liquidity crisis.
- » We must remain vigilant, even as markets recover and strengthen.

Regardless of the post-crisis, stringent regulatory regimen, banks accept the criticality of being able to immediately assess and determine the level of their liquidity risk, and decipher and execute optimal counterbalancing strategies during a rapidly deteriorating market environment. Not having this capability can literally mean the difference between survival and insolvency.

As financial services organizations work hard to avoid repeating the strategic and operational lapses of the past, they face an increasingly stringent regulatory environment governing liquidity risk. Therefore, it is imperative that they have unfettered access to accurate, real-time data from across the enterprise, spanning all risk categories; the ability to quickly develop, run, and analyze risk scenarios; and the necessary tools to deliver actionable insight to decision-makers.

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*“Ideally, assessment of potential liquidity risks should be fully integrated into a bank’s capital analysis.”*

**RANDALL S. KROSZNER**  
BOARD OF GOVERNORS  
U.S. FEDERAL RESERVE SYSTEM

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## Liquidity Risk under the Microscope

The global financial crisis turned traditional liquidity risk management thinking on its head, and the dust has yet to fully settle. Regional and national regulators continue to advance new rules and oversight that are requiring banks to reassess nearly every aspect of liquidity risk management, including data collection, ratio calculations, stress testing, and integration of liquidity risk management and capital planning functions.

Uncertainty remains, however. For example, in October 2013, the Federal Reserve Board of Governors announced for comment the U.S. version of the Basel Committee on Banking Supervision’s (BCBS) Liquidity Coverage Ratio (LCR). While the announcement was expected, many institutions were surprised that the U.S. version was significantly more draconian than BCBS’s version, especially for larger bank holding companies.

Continuing the drumbeat, the U.S. Office of the Comptroller of the Currency (OCC) in January 2014 proposed rules and guidelines establishing minimum risk governance standards for certain large insured financial institutions. The rules formalize the OCC’s heightened expectations for risk management and expanded accountability and held some surprises for smaller banks that might not have expected to be subject to the same risk management expectations as larger banks. We anticipate that this trend will continue.

Given the severity of the global financial crisis, regulators have significantly redefined the criteria for exactly what constitutes a high-quality liquid asset (HQLA). Basel III put forth that to “qualify as ‘HQLA,’ assets should be liquid in markets during a time of stress, and ideally, be central bank eligible.... Assets are considered to be HQLA if they can be easily and immediately converted into cash at little or no loss of value. The liquidity of an asset depends on the underlying stress scenario, the volume to be monetized and the timeframe considered. Nevertheless, there are certain assets that are more likely to generate funds without incurring large discounts in sale or repurchase agreement (repo) markets due to fire-sales even in times of stress.”<sup>1</sup>

## Here Today, Gone Tomorrow?

Building a credible, stable liquidity position takes significant time and comes at great cost, but unless managed diligently, can evaporate in a matter of hours. For example, at the height of the global financial crisis, Bear Stearns saw its cash and liquid assets shrink by nearly 90% in three days.

In light of the above, it is not surprising that greater focus on a more detailed understanding, and ultimately, better anticipation of the changes to a financial institution’s liquidity risk profile is now a primary objective.

Being able to stay ahead of the liquidity risk curve is paramount. To this end, regulators feel they must regulate to ensure that, if a bank were to hit the buffers, it does not take numerous other financial institutions with it, along with customer deposits and investments.

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<sup>1</sup> “Basel Committee on Banking Supervision Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools,” Bank for International Settlements Basel Committee on Banking Supervision. January 2013.



What does this mean for banks today? Strategically, banks have been forced to re-evaluate their business models by downsizing, and in some cases, exiting lines of business because of the prohibitive cost of providing ongoing liquidity support. Furthermore, as experience has shown, a deep funding crisis cannot rely on capital to act as an adequate buffer for the market-related losses arising out of distressed asset liquidations.

Quite simply, liquidity management cannot be viewed as a regulatory burden; instead it must be considered a business essential and leveraged to maximize earnings, limit the damage to overall shareholder value, and ensure the bank's survival.

Operationally, liquidity risk cannot be assessed and managed effectively in isolation, as numerous credit and market risk variables factor into the equation. Analyzing the interplay of all these factors is challenging at the best of times, and becomes even more difficult during periods of heightened market volatility. Coupled with the consensus that continued access to liquidity is no longer considered the norm and tail events are more likely, the management of liquidity risk could easily (as history has shown) become untenable.

As part of their mandate, regulators are demanding that financial institutions supplement regulatory liquidity ratios with much deeper, detailed quantitative and qualitative information – an approach that appears logical based on past events. The expectations are that banks intrinsically should know the key risk and business drivers behind their LCR, how they interact, the impact they would have on the stock high-quality liquid assets (SHQLA), the likelihood of a liquidity drain from uncollateralized and collateralized derivatives exposures, and how a funding concentration could evolve.

## Re-evaluating the Liquidity Risk Strategy

To fulfill regulatory requirements and, ideally, avoid future liquidity meltdowns, banks must look at their liquidity profiles in a far more dynamic, inquisitive, and uncompromising way. Achieving this goal will require expanded data collection and analysis.

Increasingly, regulators are steering toward a platform of integrated liquidity and capital – a capability that many banks lack because they operate separate, and often multiple, liquidity risk and capital management platforms that are not integrated at the data extraction, processing, and reporting levels.

Even though conceptually distinct, liquidity and capital adequacy are inextricably linked. Liquidity issues can have a negative impact on bank balance sheets and, ultimately, bank capital adequacy. During a crisis, a bank may experience pressures to several areas of its balance sheet at the same time, which necessitates an enterprise-wide assessment of liquidity risk and capital adequacy.

“Ideally, assessment of potential liquidity risks should be fully integrated into a bank's capital analysis,” noted Randall S. Kroszner, member of the U.S. Federal Reserve System Board of Governors, at the 2008 Institute of International Bankers Annual Washington Conference. “In some cases, banks may not necessarily generate specific capital attributions for liquidity risk; that is, they may not internally quantify liquidity risk in capital terms the same way they do for market or credit risk. For instance, to capture market-liquidity risk in capital adequacy assessments, banks may decide to make adjustments in other risk areas, such as by embedding market-liquidity premia or applying market-liquidity haircuts in pricing models and valuations, or by adjusting assumed holding periods – all of which would increase capital attributions in market or credit risk. As for funding-liquidity risk, it is not clear that banks have been able to establish a clear link between funding-liquidity parameters and robust capital attributions; however, through testing and scenario analysis – exercises that capture both bank-specific problems



and broader market disruptions – banks should still be able to assess the impact that problems in funding-liquidity risk can have on capital adequacy.”<sup>2</sup>

## Understanding Vulnerability

As with any risk management undertaking, it is important to fully understand vulnerability when considering liquidity risk, including the many factors that can influence it. In the case of liquidity risk, financial institutions should carefully evaluate the following factors.

- » How might the short duration of funding (retail and wholesale) evaporate in a crisis?
- » What type of local or global events could exacerbate a crisis?
- » What is the interplay of critical credit and market risk factors on a firm’s liquidity risk profile?
- » What are the off-balance-sheet (OBS) implications in terms of assessing liquidity drain?
- » What is the resilience of our liquidity buffer and the capital impact?

The last of these factors – which requires integration of liquidity and capital management – presents a formidable hurdle for many financial institutions because they lack enterprise-wide visibility across risk and finance.

Today, simply capturing every requirement of the LCR is a challenge for many large banks, as data is spread across multiple systems and lines of business. Without the ability to aggregate enterprise data in a single location in real time, banks also face greater uncertainty about data reliability, accuracy, and timeliness.

In addition, agility and speed remain issues. For example, can an institution quickly create and run multiple liquidity stress scenarios in parallel or quickly create and run new scenarios as potential volatile conditions emerge? Further, can the balance sheet planning process be easily incorporated into the LCR process? And, can the underlying drivers for movement in the LCR be easily exposed? In most cases today, the answer to these questions is a resounding “no.”

## Setting the Stage for Transparency

Financial firms can take three fundamental steps that can help them to address the challenges outlined above and build an environment that can support integrated liquidity and capital management to satisfy regulatory requirements and support solid business performance.

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<sup>2</sup> “Liquidity Risk Management in the Business of Banking,” speech by Randall S. Kroszner, Member, U.S. Federal Reserve System Board of Governors, at the 2008 Institute of International Bankers Annual Washington Conference, March 3, 2008, <http://www.federalreserve.gov/newsevents/speech/kroszner20080303a.htm>.

### Create a Transparent and Auditable Stress Testing Program

- Adopt a transparent solution that allows regulators to understand the defined stress scenario, the impact on underlying data, the calculation process, and ultimate numbers
- Build comprehensive library of stress scenarios that are consistent with enterprise use and reflect regulator needs catering to market-wide and idiosyncratic requirements

### Develop Multiple Alternative Counterbalancing Strategies

- Develop funding strategies based on anticipated market conditions and associate those with stress scenarios
- Identify net exposure after mitigating strategies and manage the institution's risk appetite

### Establish Supervisory & Management Dashboards

- Develop a process of timely availability of liquidity reporting and dashboarding
- Provide a means for management, board, and regulators to be well satisfied with "explanatory detail" for critical issues

#### » Create a transparent and auditable stress testing program.

Banks, for many years, have run liquidity stress tests and created contingency funding plans, but many did so half-heartedly, since markets were flush with liquidity, and the prospect of a liquidity crisis seemed a distant possibility.

Stress tests are now considered instrumental to a bank's ability to remain solvent in a time of crisis. They also can reduce the costs of managing asset liquidity and offer greater insight into potential hotspots that might not be otherwise revealed. Further, stress testing reduces the perception of counterparty credit risk and facilitates the development of contingency funding plans.

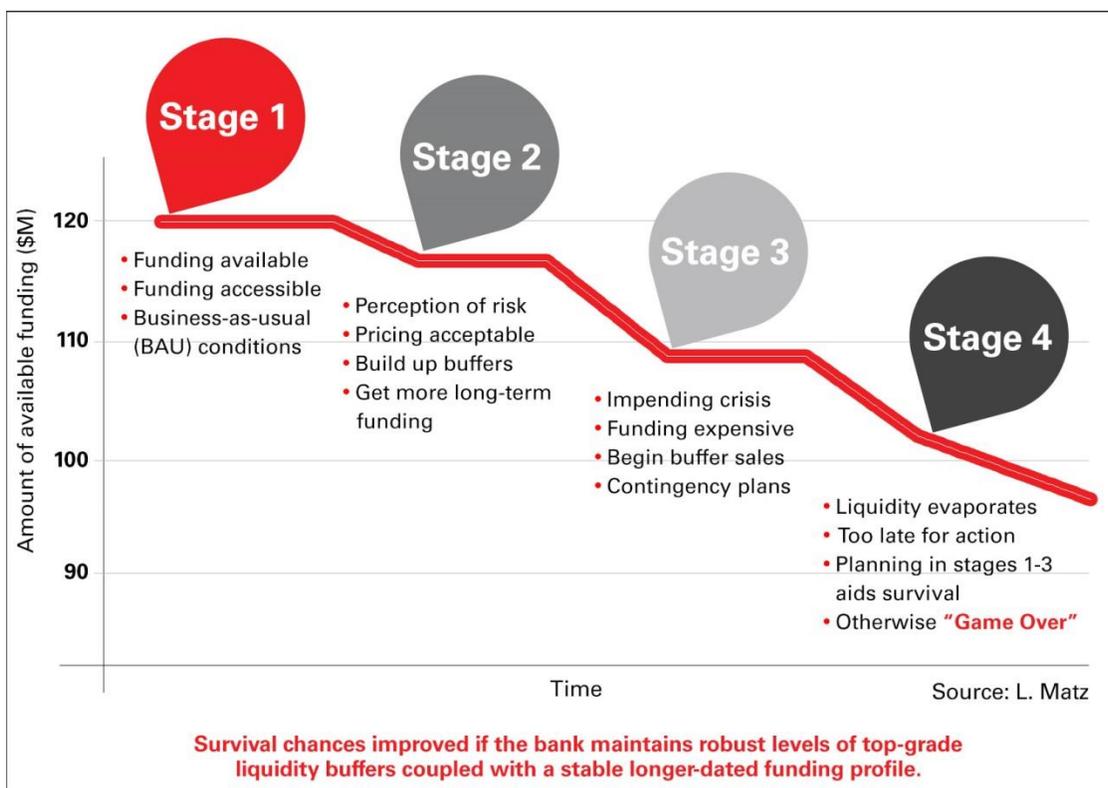
Not all stress tests or platforms are created equal. It is essential to obtain a transparent view of all asset portfolios across all lines of business and regions. As important is the ability to integrate other forms of risk, including market and credit, and enable alignment between risk and finance to assess potential impact on the balance sheet. Fundamental to this objective is an analytical infrastructure that includes a unified financial services data model, shared analytical computations, and a strong business intelligence platform. This approach can deliver a level of transparency that enables management and regulators to understand defined stress scenarios, their impact on underlying data, the calculation process, and results.

The stress testing program and environment should offer flexibility to study and react to rapidly developing market conditions. Since each crisis is unique, firms require the ability to quickly create, revise, and reuse stress scenarios with varying levels of severity and duration, as well as rank asset classes according to their liquidity status under a range of stress scenarios. A firm's risk management environment should enable it to build a comprehensive library of stress scenarios that are consistent with enterprise use and reflect regulator needs catering to market-wide and idiosyncratic requirements. The scenarios should also have the ability to be shared across the enterprise risk management environment to ensure consistency.

#### » Develop multiple alternative counterbalancing strategies.

Because no financial crisis or stress follows a predictable path, banks must develop numerous counterbalancing strategies depending on the direction and severity of the scenario and how events unfold. These funding strategies should be based on anticipated market conditions and driven by insight gained from a stress testing process. Again, a transparent view of all asset portfolios across all regions and lines of business is essential to this objective.

As we saw repeatedly in 2008, there can be considerable discrepancy between the marked-to-market (MTM) asset value and actual value that can be achieved during liquidation, especially in the case of a fire sale.



To create effective counterbalancing strategies, banks must be able to weight asset classes by liquidity potential. This can be achieved via an asset liquidation matrix, which categorizes conservatively how each liquidation strategy would be mapped to a stress scenario (idiosyncratic, market, combined, and further broken down by severity – mild, medium, and severe). This approach helps to facilitate “testing” of the liquidity buffer to determine how close an asset might be sold to its MTM value. Once known, a clear course of action on what would be deemed an appropriate liquidation strategy for a particular scenario can be established, thus reducing the profit and loss impact, but more importantly, helping to ensure the bank manages to steer itself through the crisis.

Regional jurisdictions governing the transferability of assets across borders are pivotal to the creation of counterbalancing strategies. These must be incorporated into a stress scenario to avoid liquidity becoming trapped during a crisis and to confound the belief that assets exhibit freedom of movement in times of stress.

» **Establish supervisory and management dashboards.**

A bank can have the most accurate and complete data possible, but it will do little good if management and the board cannot access it or readily analyze and interrogate data, trends, and findings. Historically, stress test outcomes have only been put to limited use at the highest levels of financial institutions, as the reports and data were treated as “information only” items. There is little question that stress test information, including highly volatile liquidity risk stress test results, must become a leadership pillar. To do this, firms must operationalize that information. In other words, banks must be able to present information and analysis gleaned from stress tests in a way that is understandable and actionable.

A common data model and enterprise repository for risk management, shared analytical platform, and powerful business intelligence capabilities create a foundation that supports the development of highly interactive and



usable dashboards. Adopting this approach, firms can develop a process for timely availability of liquidity reporting and provide a channel that will satisfy management, board, and ultimately, regulator needs for explanatory detail.

## Conclusion

The financial crisis was a stark reminder that an incomplete understanding of liquidity risk – and its ultimate impact on the balance sheet – can have devastating ramifications. Seeking to learn from and not repeat the mistakes of the past, regulators and the financial services industry are focusing on integrating risk data and achieving an enterprise-wide view of an institution's risk profile. The journey continues as firms look to create infrastructures that enable the level of transparency and analysis required today.

As the financial services industry slowly emerges from the global financial crisis, we are still reminded that liquidity issues can appear out of nowhere, snowball out of control, and do grave damage to a bank's capital position. Earlier this year, a customer walked into a branch of a Chinese agricultural bank and asked to withdraw some of his cash, only to be told "no."<sup>3,4</sup> In the age of real-time social media, rumors spread quickly that the bank was in trouble and perhaps other local banks were not far behind. Before the bank realized the ramifications of its operational blunder, hordes of customers showed up demanding access to their cash. Bank management gave assurances that there was nothing to worry about, but the damage was already done. Ironically, it had to resort to shipping in physical cash by the truckload and placing it in clear view of the skeptical customers.

This story reminds us of the need for constant vigilance. The ability to quickly understand a bank's liquidity risk profile, how it could change over a period of time, the magnitude of impact, and what strategies would be deemed applicable and effective is mandatory to ensure the ultimate survival of the bank.

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<sup>3</sup> Wildau, Gabriel. "Hundreds Rush to Rural Chinese banks after Solvency Rumors," Reuters, March 25, 2014, <http://www.reuters.com/article/2014/03/25/us-china-banking-yancheng-idUSBREA2O0R520140325>.

<sup>4</sup> Ruwitch, John. "How Rumor Sparked Panic and Three-day Bank Run in Chinese City," Reuters, March 27, 2014, <http://uk.reuters.com/article/2014/03/27/uk-china-banking-idUKBREA2Q06G20140327>.



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