

# *The art of operational liquidity management*

## *Mastering the regulatory wave*

*This white paper highlights the major liquidity trends, challenges and solutions facing universal banks today.*

May 2017



---

# *Contents*

---

<b>1. Introduction</b>	2
<b>2. Our view: key aspects to consider for effective liquidity management</b>	5
<b>3. PwC Switzerland service offering</b>	9
<b>4. Contact us</b>	10

---

# 1. Introduction

Despite the fact that global monetary policy is injecting liquidity into the market and that liquidity should be ubiquitous, the management of liquidity is on top of the agenda for universal banks.

Banks around the world are deeply concerned by and interested in operational liquidity management. This is due to, firstly, the changed perception of operational and market risks triggered by the financial crisis in 2008. During the crisis, some seemingly liquid financial resources quickly became illiquid and impacted banks.

Secondly, while it is important for banks to hold a certain level of capital during the 'good' phases of economic cycles, regulators have realised that

it is even more important and useful to know how a bank's financial resources, balance sheet and P&L behave during economic slowdowns or even in financial depressions. This resulted in the current regulatory wave, in which banks need to comply with the global and local liquidity regulations introduced in the wake of the crisis (e.g. Basel III, CRD IV, Swiss Liquidity Ordinance ERV).

Thirdly, an accumulation of fines in relation to tax transparency matters and the US subprime crisis or other penalties has led to significant cash outflows for some institutions and augmented the need to improve the liquidity function.

The key challenge currently facing banks in liquidity management is the need to fulfil the regulatory liquidity requirements. The complex global organisation of universal banks makes it challenging to align the actions that need to be taken in order to comply with the various regulations, such as:

- Management Information Systems capacity
- Data feeding requirements
- Organisation business unit/division approach
- Timing
- Governance

Source: PwC Survey

## Why do banks face challenges in managing their liquidity?

- The financial crisis in 2008 changed the perception of risk: financial resources that seemed to be sustainable and liquid quickly became illiquid.
- Regulators have imposed measures that should enable banks to have enough liquidity to manage their daily and monthly operations even during a financial crisis.
- For the larger players, challenges also arise in the reconciliation of the various liquidity regulations in the US and the UK with the standards of the financial group.



## Trends in the market

Capital regulation in the Swiss market is largely based on the Basel III capital standards and Switzerland's 'too big to fail' (TBTF) regime<sup>1</sup>.

In the EU, the Capital Requirements Regulation (CRR) aims to complete the reform agenda by

introducing the following elements in order to tackle existing weaknesses as recently identified and finalised by global standard setters such as the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB):

<sup>1</sup> Schweizerische Eidgenossenschaft: Verordnung über die Eigenmittel und Risikoverteilung für Banken und Effekthändler (Eigenmittelverordnung, ERV), Änderung vom 11 Mai 2016

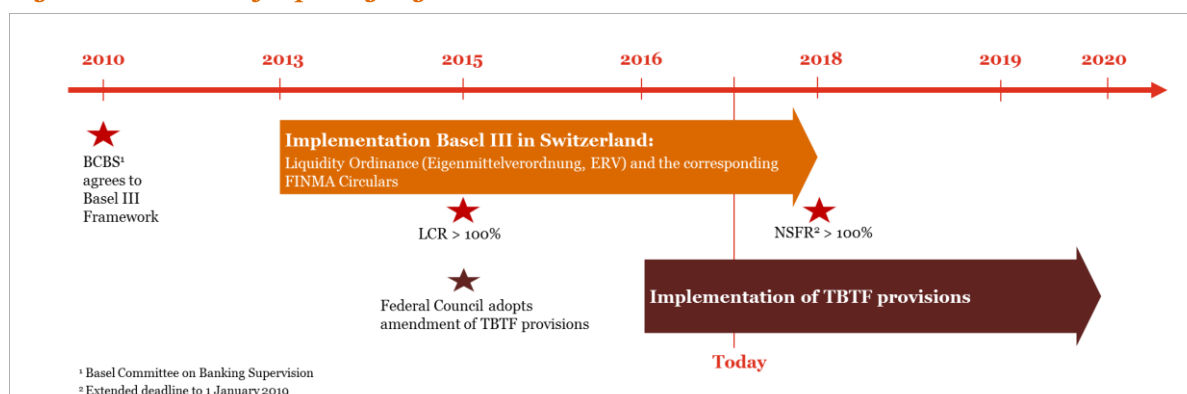
1. A binding leverage ratio that prevents institutions from excessively increasing leverage, e.g. to compensate for low profitability.
2. A binding net stable funding ratio (NSFR) which builds on institutions' improved funding profiles and will establish a standard for how much stable long-term funding an institution needs in order to cope in periods of financial distress.
3. More risk-sensitive own capital requirements for institutions that trade extensively in securities and derivatives, limiting any divergence from the institutions risk profiles.
4. New standards relating to the total loss-absorbing capacity (TLAC) of global systemically important institutions (G-SIIs), which will require those institutions to have more loss-absorbing and recapitalisation capacity and, at the same time, deal with interconnections in the global financial markets and further strengthen the EU's ability to resolve failing G-SIIs while minimising risks for taxpayers.

FINMA and the BCBS (Basel Committee on Banking Supervision) rules require Swiss systemically important banks (SIB) to ensure they

are not overly reliant on short-term funding, on the one hand, and have sufficient long-term funding for illiquid assets, on the other hand. Therefore, Swiss SIBs have had to report their liquidity coverage ratio (LCR) and maintain it at least at 100% since 1 January 2015<sup>2</sup>. The aim of the LCR, which was introduced in 2015, is to ensure the short-term survival of a bank in the event of financial distress. After evaluating the implementation of the LCR at various banks in late 2016, FINMA decided the proportionality principle should be strengthened. This means that smaller financial institutions with limited/no cross-border business might expect some relaxation of the rules. At the same time, it means that liquidity and funding obligations for large multinational players will remain at high levels.

With regard to long-term funding standards, FINMA, like the EU-CRR, requires financial institutions in Switzerland to maintain and report a net stable funding ratio (NSFR) of at least 100% as of 1 January 2018. In addition, the regulations require banks to perform so-called 'stress tests' to forecast how every element of their balance sheets and income statements would behave in various pre-defined macroeconomic scenarios. These stress tests have taken the analysis of scenarios to a new level of detail and precision.

**Figure 1: Timeline of liquidity regulations in Switzerland**



<sup>2</sup> FINMA granted one bank a transitional period until 1 January 2016 to reach the required degree of compliance

Universal banks in Switzerland have largely implemented the Basel III capital requirements, allowing them to allocate capital more dynamically than before the crisis. Implementing a new standard in liquidity measurements and combined liquidity risk models takes time and impacts a bank's operational organisation, IT infrastructure and governance.

Our aim is to illustrate the key challenges in complying with the daily liquidity regulations as well as the regulatory liquidity-risk measures, which are far from being resolved.



#### Have you thought about ...

- ...implementing NSFR and TBTF provisions by complying with all other banking regulations?
- ...how analytical models can help you to manage operational liquidity and the associated risk?

## ***2. Our view: key aspects to consider for effective liquidity management***

### ***Regulatory standards will further increase in the next years***

Even though the regulatory standards are already high, regulatory bodies have been drawing the attention of universal banks to new forms of intraday liquidity risks. For example, in 2013, the Basel Committee on Banking Supervision (BCBS) presented a set of monitoring

tools for intraday liquidity management. Partly as a result of real-time payment and settlement systems widely adopted by financial institutions, these institutions may face immediate intraday funding risks, as became apparent during the financial crisis.

### ***Intraday liquidity further refines established liquidity risk models...***

From a liquidity risk perspective, the explicit focus on intraday liquidity management further strengthens global liquidity regulations because liquidity ratios such as the LCR do not capture and incorporate intraday movements. Hence,

monitoring intraday liquidity may be considered as a further refinement of the established liquidity risk models. It also addresses the regulatory trend towards the use of real-time monitoring tools.

### ***...but also poses new challenges to the IT infrastructure***

To manage intraday liquidity efficiently and effectively at an operational level in compliance with the regulatory bodies, banks are required to use payment and settlement systems that provide intraday time stamps for transaction-by-transaction data. This may pose a significant challenge to some banks given the vast amount of transaction data generated on a day-to-day

basis and the new requirements concerning data granularity. It potentially requires heavy investments in new and more powerful MIS. Some banks address these new requirements by managing intraday liquidity using a centralised MIS in order to benefit from synergy effects and reduce the costs of new IT infrastructure.

## **The ‘daily liquidity challenge’...**

The challenge of providing comprehensive financial information is aggravated by the requirement to report most liquidity measures on a daily basis to the regulatory bodies. This poses additional requirements concerning the availability of financial data and the underlying management information systems (MIS) because

many financial institutions currently replicate only parts of their balance sheet and profit and loss statements on a daily basis (e.g. for the purposes of internal strategic asset and liability management).

## **...exemplifies that operational challenges are far from being resolved**

The significant operational challenges posed by regulatory-imposed liquidity risk measures are far from being resolved. Only once they are resolved will financial institutions and the regulators, as the primary recipients of the reports, be

able to interpret the results accurately and capture the full value of liquidity measures. Some of the challenges relating to the implementation of liquidity risk models include.

- Understanding and managing reconciliations and conversions between regulatory reports.
- Enhancing management information systems (MIS) capabilities and flexibility to provide the results of the liquidity risk model to regulators at the required frequency. Enhancing data quality, inputs of model.
- Incorporating off-balance sheet items (such as liquidity-relevant contingent claims).
- Aligning the information flows and feeds of disparate ledger systems to adjust to the required reporting frequency.
- Reflecting ledger adjustments for daily reporting purposes.

### **Have you considered ...**

- ...whether your financial information is accurate, comprehensive and readily available to input in your model on a daily basis?
- ...the impact of omitted off-balance-sheet items on the results of your liquidity risk models?



## **Multiple gaps exist at operational level**

Various gaps still exist at an operational level to enable effective intraday liquidity management, including:

- Complementing missing granularity with respect to transaction data.
- Enhancing insufficient data capacity of ledger data systems.
- Finding the right IT reporting solutions, many banks still manage part of their liquidity with tactical tools.
- Defining interdependencies between interconnected payment and settlement systems for intraday liquidity bridges.
- Applying stress scenarios to intraday liquidity risk ratios (e.g. maximum intraday liquidity usage).
- Incorporating effects of liquidity-relevant off-balance-sheet items.

### **Have you looked at ...**

- ...whether your IT infrastructure has the capacity to report intraday liquidity movements on a day-to-day basis?



# Current liquidity regulatory standards are at high levels and challenging

The current standards of regulatory liquidity reporting are high. New regulatory developments and requirements further increase the complexity of the regulatory landscape and pose additional challenges to financial institutions. Financial institutions need to keep up with those developments. An effective governance structure may help overcoming those challenges much faster.



**Our view – key takeaways**

- The standards of liquidity risk management are already at high levels in terms of scope, accuracy and frequency.
- New regulatory tools will require further investments in liquidity management
- Monitoring tools also require enhancements of the existing governance structure in order to ensure full regulatory compliance.

# Liquidity models and reports are sophisticated and complex to implement

In the aftermath of the financial crisis, regulators imposed new liquidity measures aimed at ensuring adequate liquidity risk management by introducing different models such as liquidity stress tests (LSTs) or LCRs and non-stressed models, such as NSFRs. Regulatory bodies require that financial institutions use complex, highly sophisticated stress test models to test the substance and stability of cash flows under different macroeconomic scenarios. The imple-

mentation of such models and scenarios revealed several challenges. To reflect accurately the results of a stress test under any scenario, financial institutions need readily available detailed, accurate and comprehensive balance sheet and profit and loss data to feed their model. In addition, liquidity stress tests may also require the incorporation of off-balance sheet items with a potential impact on liquidity buffers or funding strains, such as liquidity-relevant contingent claims.

Figure 2: Selection of common liquidity risk models

## Selection of Common Liquidity Risk Models

<u>Liquidity Stress Testing</u>	<u>Liquidity Coverage Ratio</u>	<u>Net Stable Funding Ratio</u>
<p style="text-align: center;"><i>Min. Liquidity Surplus Target = Liquidity Buffer + Net Required Liquidity</i></p> <ul style="list-style-type: none"> <li>▪ Stressed model</li> <li>▪ Normally assumes an idiosyncratic, market-wide and combined stress scenario</li> <li>▪ Varying stress periods, e.g. 30 days, 3 months</li> </ul>	<p style="text-align: center;"><i>Stock of High Quality Liquid Assets Net Cash Outflow over 30 days</i> = ≥ 100%</p> <ul style="list-style-type: none"> <li>▪ Stressed model</li> <li>▪ Ensures sufficient stock of high-quality liquid assets compared to expected net cash outflows</li> <li>▪ Total expected cash inflows cannot be higher than 75% of total expected cash outflows</li> </ul>	<p style="text-align: center;"><i>Available Amount of Stable Funding Required Amount of Stable Funding</i> = ≥ 100%</p> <ul style="list-style-type: none"> <li>▪ Non-Stressed model using weighting factors</li> <li>▪ Ensures a bank's regular funding not to erode its liquidity position to increase risk of failure</li> <li>▪ Measured based on characteristics of relative stability of funding sources</li> </ul>

Source: Based on Basel Committee on Banking Supervision, Consultative Documents for Liquidity Risk (2008) and Basel III - NSFR (2014)

# Effective governance is key to mastering current and future challenges

Regulatory authorities have also been pushing towards remodelling liquidity management governance. Only enhanced model governance will allow universal banks to embed new liquidity risk monitoring tools in the existing organisational structure in order to meet the regulatory expectations. For example, certain stressed

models are subject to similar checks and balances as credit risk models, whereas the accuracy and reliability requirements of the model will increase. Subsequently, this may require significant adjustments and reconsiderations of the current control processes.

---

## ***It requires streamlined communication channels...***

Banks need to ensure that their governance enables the proper communication of external rules and internal policies throughout the institution. Banks also need to ensure that internal

policies are independently reviewed and updated, as regulators may gradually refine the requirements.

## ***...and active involvement of senior management***

As regulators put more emphasis on adequate and compliant liquidity risk management, a bank's board and senior management is expected to intensify its oversight of the liquidity risk ratios. Senior management is likely to be

more actively involved in the decision-making. Management may also have to be ready to justify and validate the key assumptions and the model limitations regarding the key strategic liquidity ratios.

## ***For some banks, front-to-back integration is the way to go***

Some banks aim to achieve effective governance by centralising the ownership of liquidity risk models in a competence centre. This reduces the complexity of control frameworks, providing a single point of contact to senior management. It also enhances transparency and facilitates the information flows between the bank and regulators, as the required information is stored centrally and external model validations and refinements can be communicated efficiently and effectively.

### **Have you thought about ...**

- ...how centralising the ownership of liquidity risk models across business units and functional areas may facilitate communication with regulators?
- ...how your internal policies relating to liquidity risk are reviewed and continuously aligned to regulatory developments?





# 3. PwC Switzerland's service offering

PwC Switzerland is the leading audit and advisory company in Switzerland. Within PwC Switzerland, around 3,000 employees and partners in 14 locations in Switzerland help organisations and individuals create the value they are looking for.



## Measuring the differences

- How could you improve your liquidity management approach and capabilities?
- What tools might help you?

PwC Switzerland's Finance, Risk and Regulatory (FRR) Competence Centre offers tailored strategic support to meet its clients' specific needs. The FRR team collaborates closely with the industry's leading banks to address the evolving regulatory demands and the changes in market risks. The interdisciplinary core competencies of PwC Switzerland in the area of liquidity risk management include:

## From Strategy to Execution

### Strategic Liquidity Management

- Liquidity Risk Market Assessment
- Comprehensive Liquidity Management Effectiveness Review
- F2B Liquidity Control Framework Review
- Global Liquidity and Funding Policies & Procedures Alignment

### Implementation and Operations

- Liquidity Model Review and Model Risk Management
- Integrated Operational Liquidity Planning
- Stress Testing Modelling and Capability Review
- Operational Risk Management (ORM) Programs
- Risk Management Frameworks
- Risk Data Infrastructure and Finance Alignment
- Balance Sheet Optimization
- Finance Data Infrastructure Review
- Support and develop IT implementation (BRDs, FRDs)
- Impact analysis of adjustments to ratios
- Project coordination with further regulatory requirements

## 4. Contact us

*For further information, please contact:*



**Patrick Akiki**  
**Partner**

.....  
+41 58 792 2519  
akiki.patrick@ch.pwc.com



**Marc Lehmann**  
**Director**

.....  
+41 58 792 2650  
marc.lehmann@ch.pwc.com

### Tailored solutions

We recognise that every business is different. How your operational liquidity management approach is set up and performs varies depending on the financial and risk profile of your business, as well as the size, sector and international reach of your organisation.



*We wish to thank Tobias Schori, Andrea Staudacher and Pedram Rostami for their valuable contribution to this white paper.*

This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, PricewaterhouseCoopers does not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.

© 2017 PwC. All rights reserved. Not for further distribution without the permission of PwC. 'PwC' refers to the network of member firms of PricewaterhouseCoopers International Limited (PwCIL), or, as the context requires, individual member firms of the PwC network. Each member firm is a separate legal entity and does not act as agent of PwCIL or any other member firm. PwCIL does not provide any services to clients. PwCIL is not responsible or liable for the acts or omissions of any of its member firms nor can it control the exercise of their professional judgment or bind them in any way. No member firm is responsible or liable for the acts or omissions of any other member firm nor can it control the exercise of another member firm's professional judgment or bind another member firm or PwCIL in any way.