Liquidity Risk Management

Recent Trends

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Abstract

With the evolution of Basel reforms, risk management is an increasingly key part of the decision-making process for financial institutions. The crisis of 2008 has shown that having sufficient capital is not adequate to remain solvent under market stress—indeed, inadequate management of liquidity has been found to be the sole reason behind the crisis. The Basel Committee of Banking Supervision (BCBS), along with its member countries and their banking regulators, has been more vigilant than before in institutionalizing sound liquidity risk management practices.

In this paper, we have provided the details of these guidelines and relevant liquidity risk management activities which are generally observed in banks around the world. This paper also contains certain aspects of liquidity risk which do not stem from regulatory guidelines, but rather fall under prudent risk management techniques.

Acknowledgements

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Keywords: Liquidity risk management, liquidity risk, liquidity risk management cycle, liquidity risk management strategy, asset and liability management, liquidity risk framework, liquidity risk policy, liquidity risk models, liquidity risk reporting, behavioral modelling, liquidity risk modelling, liquidity stress testing, liquidity risk ICAAP, liquidity risk scenario analysis, new volume projections, funding execution plan, early warning indicators, EWI, intraday liquidity management, Basel III, Basel 3, liquidity coverage ratio, LCR, net stable funding ratio, NSFR, Genpact

1. INTRODUCTION

The core activities of a bank are to raise funds through deposits and market borrowings, and deploy the same through loans and advances and various investments. Banks tend to take advantage of upward-sloping yield curve by sourcing funds in the short term and deploying those in the long term. In this way, banks end up collating liquidity risk in their books.

Regulators across the globe have designed various standards to help banks mitigate such risk. Invariably, all of those standards are linked to the Basel guidelines.[1] The root cause of the 2008 global financial crisis was liquidity risk mismanagement. Subsequently, the Basel Committee developed the Basel III guidelines to address the need for sound liquidity risk management under stressed conditions.[2]

Another area of focus for regulators is managing intraday liquidity risks.[3]

In addition to these, funding liquidity risk has a deep-rooted connection with the funds transfer pricing (FTP) process, as the treasury is mandated to remove business groups from the burden of managing their funding risk. In this regard, Bank for International Settlement (BIS) had published a paper to describe best practice of incorporating liquidity risk charges, called, liquidity transfer pricing (LTP)[4].

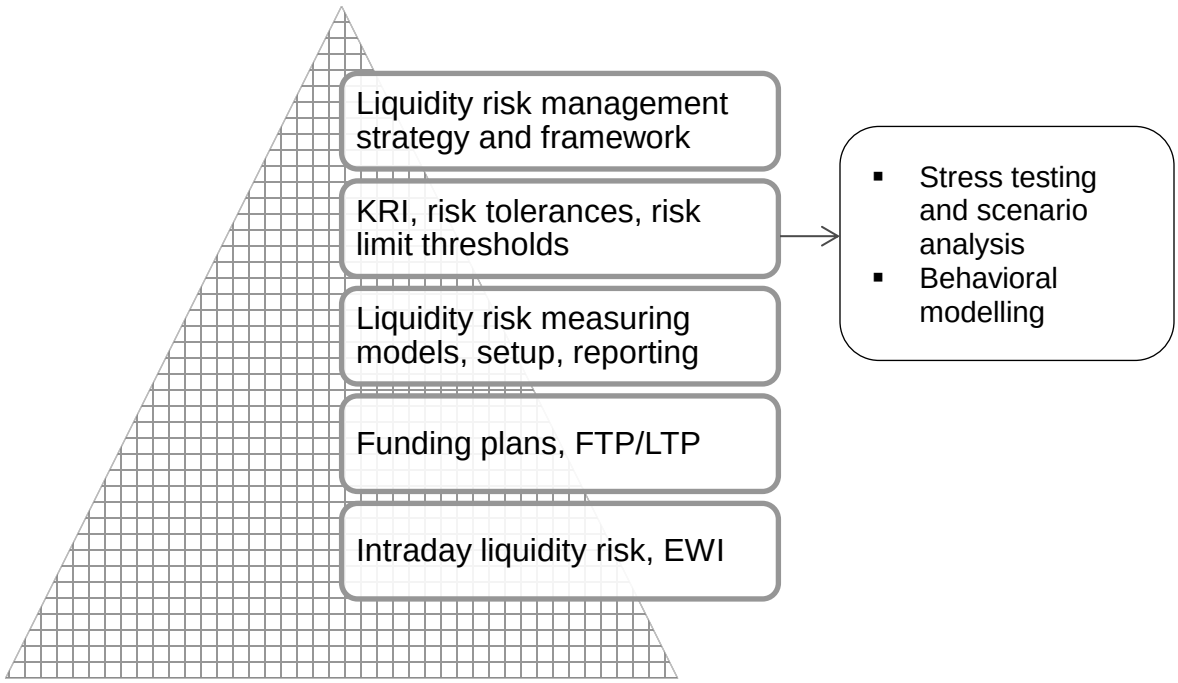
This paper analyzes the practices that banks follow to comply with these regulatory requirements. This paper also describes current industry practices for liquidity risk management.

[1] Basel Committee for Banking Supervision (BCBS), Principles for Sound Liquidity Risk Management and Supervision, September 2008
[2] BCBS, Basel III: A global regulatory framework for more resilient banks and banking systems, June 2011
[3] BCBS, Monitoring tools for intraday liquidity management, April 2013
[4] Joel Grant, Australian Prudential Regulation Authority, Liquidity transfer pricing: a guide to better practice, Financial Stability Institute, BIS, December 2011

2. LIQUIDITY RISK MANAGEMENT CYCLE

Risk management at banks involves having a sound policy and framework, as well as measurement metrics, calculation techniques, and monitoring mechanisms. Such processes are closely monitored by senior management. Risk management, as a tool, is used to manage liquidity risk by managing specific levers. Exhibit 1 explains the processes involved in liquidity risk management.

Exhibit 1: Liquidity risk management cycle



These activities are performed in close coordination across various functions at a bank. The detailed functionalities are given in Exhibit 2.

Exhibit 2: Functional responsibilities

#	Functions	Activities	Design and execution responsibility
1	**Strategy and framework**	Risk appetite statement	CFO and asset and liability management (ALM),[5] CRO and risk management
2	**KRI, risk tolerances, risk limit thresholds**	Risk indicators (e.g., loan to deposits, reliance on wholesale funding/macro environment, bucket-wise gaps, projected stock of liquidity, etc.) Liquidity limits per maturity buckets – forecast balance sheets, forecast risk positions, apply constraints (e.g., ability and reputation to borrow in the market, etc.)	ALM and risk management
3	**Liquidity risk measuring models**	Behavioral models – non-maturity deposits (NMD), prepayment, etc. Stress testing models (e.g., ICAAP models, scenario analysis models, etc.), short-term and protracted stress, bank- and market-specific scenarios	Risk management and business groups
4	**Model setup**	Setting up ALM software and underlying database	Middle-office operations and technology

[5] ALM includes funding execution desk

#	Functions	Activities	Design and execution responsibility
		Connecting the system with various banking systems and accounting systems	
5	**Reporting**	Regulatory reports - LCR, NSFR, static/dynamic gap, liquidity projections Internal MIS, trend analysis, root cause analysis, commentary, ALCO reporting	Middle-office operations
6	**Funding plans, FTP/LTP**	Methodology to price liquidity risk collateral, calculate liquidity utilizations Liquidity buffer management Funding contingency plan	ALM, finance, risk management
7	**Intraday liquidity risk**	Design of databases for internal and external data sources Reconciliation systems for tallying data between internal records and counterparty records Development of models, BAU and stress	ALM, operations
8	**EWI**	Design of EWI and operational protocols Monitoring of EWI	ALM, risk management, operations

3. LIQUIDITY RISK MANAGEMENT STRATEGY, FRAMEWORK, METRICS AND POLICY LIMITS

It is a regulatory requirement and of strategic importance to the risk management function, the CRO, the CFO, and the board, that a bank has and reviews its entire liquidity risk management (LRM) framework and processes periodically. Accordingly, as a prudent practice, all banks review their LRM policy (or some other equivalent policy like asset and liability management (ALM) Policy), liquidity risk stress testing Policy, LRM limits and controls in accordance with the risk appetite statement, LRM measurement metrics, models, monitoring, and reporting processes.

This paper aims to provide basic guidance for such policies and processes. At the same time, it is important to emphasize that each bank is unique, and that objectives, products, and risk management practices will therefore be different from bank to bank.

The board and management have to set up the right structure and governance mechanism, which will be responsible for the entire pyramid of liquidity risk management. The “must take” steps are shown in Exhibit 3: LRM policy and practices start at the top.

Exhibit 3: LRM policy and practices start at the top

Key requirements for LRM	Steps to be followed at the enterprise level
▪ LRM activities to be closely controlled by board-level committees ▪ Balance sheet management to be performed under the supervision and boundaries laid down by the committees ▪ Adequate focus on risk measurement and reporting by implementing required IT infrastructure ▪ Compliance with regulatory guidelines ▪ For global and diversified banks/ bank holding companies, to ensure that governance structure comply with norms at respective geographies	▪ Right "organization structure" − Specific subsidiary requirements for foreign banks (e.g., in US); governance procedure for foreign entities and banking/non-banking subsidiaries − Board-level committees like risk management committee of board (RCB) and asset and liability management committee (ALCO) − The quorums, permanent attendees, and roles and responsibilities of such committees ▪ Group-level governance framework, such as group liquidity management framework (GLMF)

	▪ Relationship between the group entities and the branches; policies around the credit lines through entities

Diligent monitoring and reporting are crucial to effectively managing liquidity risks. The following section contains a few measures which are observed in many banks.

- Flow approach
    - Liquidity gap, bucket wise, and cumulative
    - Currency-wise, country-wise, and consolidated reports

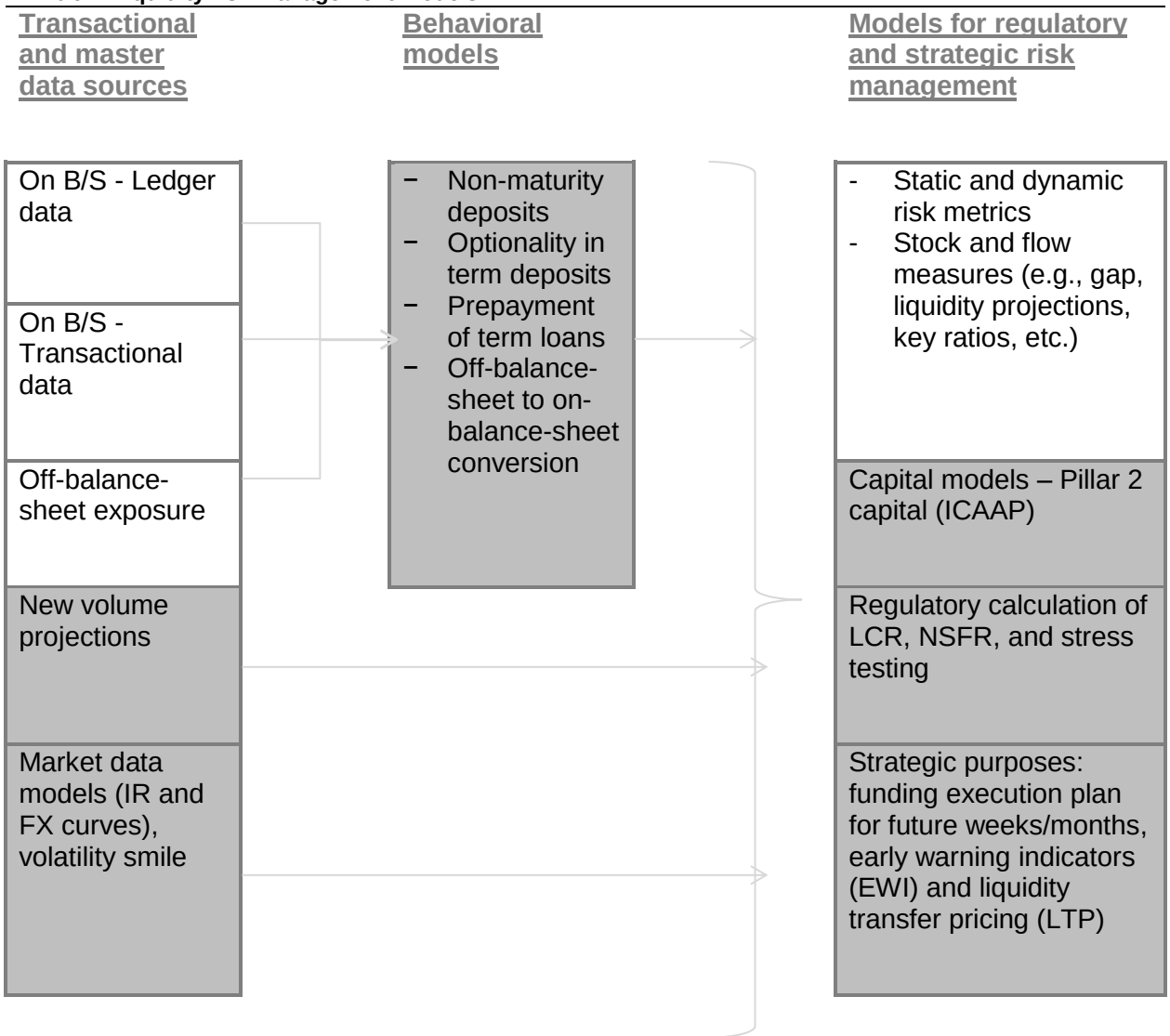
- Stock approach
    - Liquidity projections
    - Various ratios capturing: the extent to which volatile money supports bank's basic earning assets; the extent to which assets are funded through stable deposit base; the extent to which illiquid assets are financed out of core deposits, etc.

- Stress testing, Pillar 2 capitals, ICAAP
    - LCR and NSFR
    - Design and monitoring of ICAAP (in some countries ILAAP and ILAA) scenarios
    - Pillar 2 capital provisioning

4. LIQUIDITY RISK MEASURING MODELS AND REPORTS

The core liquidity risk management models, such as static gaps, ratios, and dynamic liquidity projections, are automated models. In general, these models are implemented either in sophisticated liquidity risk management systems, such as OFSAA, QRM, and Bancware, or in simple spreadsheets, depending upon the complexity of the balance sheet and the business structure. However, there are various models which are implemented outside of such systems. Examples of such models include new volume/yield projections, behavioral projections, capital calculation models, etc. Exhibit 4, below, explains the role of various models in the liquidity risk reporting cycle.

Exhibit 4: Liquidity risk management models



Models built outside liquidity risk management systems

4.1 Liquidity risk arising due to balance sheet dynamics

The risk that cash flows deviate from contractual cash flows drives a significant portion of liquidity risk.

- **Cash flow reporting**: The liquidity gap reports cash inflows and outflows and is used to determine the net cash position at any point in time. Cumulative cash position and maximum cash outflows highlight the maximum inflow and outflow in any forecasting period.
- **Term loans**: Liquidity risk in the term loans portfolios entails modelling the probabilities of **partial prepayment, loan extension, and full prepayment**. All or any one of the above changes contractual cash flows and gives rise to liquidity risk.
- **Residential mortgage** portfolios entail modelling the probabilities of **curtailment (partial prepayment), loan conversion/reduction, and full repayment.**
- **Maturing assets and liabilities**: The liquidity risk in term deposit portfolios is related to **early withdrawal** (termination before contractual end date) and **rollover** risk (investing in the same product after maturity date, renewal). Events such as stress tests, scenario analysis, and changes in macro-economic variables impact contractual maturities and cash flow projections.
- **Non-contractual assets and liabilities**: Estimating liquidity for accounts without a maturity date is challenging, yet critical. The risk is that the total outstanding relative to the limit (i.e., utilization) strongly impacts liquidity. Liquidity risk in non-contractual liability is related to the run-off risk and to occasionally erratic fluctuations in the outstanding balance of the accounts.
- **Trading assets – securities:** Liquidity risk in trading assets is associated with unexpected cash flows resulting from changes in haircuts and initial margins.
- **Collateralized derivatives**: Liquidity risk in collateralized derivative exposure is related to initial/variation margins.

4.2 Behavioral modelling

Behavioral modelling is essential to capturing liquidity risks. In order to effectively assess the liquidity risk of various products, banks need well-specified econometric models combined with a consistent approach across all on- and off-balance-sheet items. Typical items for which behavioral models are required are:

- **Maturing assets:** residential mortgages, term loans - prepayment risk, conversion, maturity extension/reduction

- **Non-maturing assets:** current accounts debit - utilization risk
- **Capital markets:** securities and CSA derivatives - haircuts, initial margins, variation margins
- **Non-maturing liabilities:** Checking/current accounts, savings accounts - attrition risk, balance fluctuation
- **Maturing liabilities:** term deposits - roll-over risk, early withdrawal risk
- **Modelling approaches:**

    - Map financial accounts to generic modelling categories
    - Identify key behavioral liquidity risks for the “in-scope” portfolios
    - Define business segmentation per portfolio (e.g., corporate, retail, international clients, etc.)
    - Estimate behavioral liquidity risks via well-specified econometric models (emphasis on diagnostics)
    - Report liquidity cash flow mismatches via the behavioral calendar

General expectations from Basel and other regulators are given in Exhibit 5.

Exhibit 5: Regulatory compliance of behavioral models

Regulatory requirements	Road to compliance
In measuring liquidity risk, key behavioral and modelling assumptions should be fully understood, conceptually sound, and clearly documented. Such assumptions should be rigorously tested and aligned with the bank’s business strategies.	▪ Developing behavioral model (after analyzing various alternative model methodologies, to ensure tailor-made models for the portfolio) ▪ Validation of existing behavioral models ▪ Periodic enhancements of these models as per management/audit/regulatory findings ▪ Model documentation and recommendations on potential areas of enhancements

Exhibit 6 contains the high-level steps which are generally followed at big banks as best practices.

Exhibit 6: "Best practice" steps in behavioral models

Analyze product features	▪ Determine importance of the product at the portfolio/account level ▪ Understand the factors affecting movements in product composition
Portfolio segmentation	▪ Classify the product portfolio (e.g., deposit) into homogenous yet materially distinct segments ▪ Geographical/customer segmentation (e.g., retail/wholesale segmentation)
Statistical modelling	▪ Establish quantitative relationship between products with determinants across scenarios ▪ Use different techniques, such as time series analysis, portfolio optimization, etc.
Integration with ALM system	▪ Business-as-usual and stress scenarios ▪ Static and dynamic gap reports ▪ Acts as input to all ALM model

For different parts of the balance sheet and various product characteristics, multiple behavioral studies are carried out. Some of those are given in Exhibit 7.

Exhibit 7: Variants of behavioral models

Non-maturity deposits	Time deposits	Borrowings	Loans and advances	Non-maturity assets	Off-balance-sheet items
Core/volatile	Premature withdrawal	Financial covenants	Prepayments	Utilizations	LC, SBLC, undrawn WC
Transactional deposits	Rollover	Embedded options	Delinquency	Repayments	Derivatives

Liquidity risk management focuses primarily on balance sheet dynamics and behavioral modelling in order to predict cash flows and risks associated with each type of inflow and outflow. A summary of classification, product type/behaviour, and exposure to risk type is summarized in the table below.

Exhibit 8: Sources of liquidity risk from balance sheet dynamics

		Classification	Product type/behavior	Risk type
Liquidity risk management cycle	Liquidity risk and balance sheet	Balance sheet cash flow	Contractual cash flows	Maturities
				Amortization
			Behavioral cash flows	Loan prepayments
				Deposit attrition
			Contingent cash flows	Run offs
				Stress payments
				Margin calls
	Behavioral liquidity - modeling	Maturing assets	Term loans and residential mortgages	Prepayment risk
				Conversion risk
				Maturity extension/reduction risk
		Non-contractual assets	Current account debit	Utilization risk
		Maturing liabilities	Term deposits	Early withdrawal risk
				Roll-over risk

		Classification	Product type/behavior	Risk type
		Non-contractual liabilities	Current accounts/savings accounts	Balance volatility
				Attrition risk
		Capital markets	Securities and derivatives	Initial margin risk
				Variation margin risk
				Haircuts

4.3 Capital models/stress testing/scenario analysis

These models aim to generate “extreme-but-plausible” scenarios that a bank could experience, both for short and protracted periods of time. These models are built primarily using time-series analysis, studying historical stress periods, monitoring ongoing economic situations, and applying sound business judgments. The stress testing approach involves calculating liquidity gaps under such scenarios. A three-stage Analyze-Identify-Develop approach is outlined in Exhibit 9 below.

Exhibit 9: Three-stage approach to scenario identification and development

1 Analyze assets, liabilities, and off-balance-sheet exposures

- Express all items as a percentage of total assets, paying attention to high-percentage items
- Find out key liquidity ratios based on underlying business rationale (e.g., if the loan book is strategically funded by the deposit book, loans to deposits are a key risk metric)

2 **Identify** sources of liquidity risk

- Of all the percentage compositions and key metrics, identify those which pose significant risk to the balance sheet (e.g., high percentage of deposits, high percentage of loans being funded by wholesale funds, etc.)
- Identify balance sheet growth and strategic areas where there may be sources of liquidity risk
- Identify macroeconomic events which could pose a threat to those items on the balance sheet which may not currently be at risk

3 **Develop** scenarios addressing the sources of risk

- Scenarios should address the risk areas identified in step two
- Scenarios should be extreme but plausible

Stressed economic events may arise from macroeconomic sources as well as from the specific financial/business situation within a particular bank. Accordingly, banks are supposed to consider market-specific, bank-specific, and combined scenarios to assess their financial preparedness for handling such situations. Some indicative list stress scenarios, which are observed in many banks, are given below.

- Market-specific stress scenarios -
  - Illiquidity in interbank money market and wholesale funding market
  - Drying up of loan securitization market
  - Central bank imposing restrictions on reserve maintenances
  - Central bank imposing restrictions on liquidity facilities
  - Deterioration of credit risk of the market creating higher utilizations of working capital limits
  - Worsening credit worthiness of selected sectors of economy
- Bank-specific scenarios -
  - Higher margin calls from outstanding derivative contracts

- Run-on-the-bank
- Defaulting on key covenants, such as rating downgrade and reduced solvency ratio, forcing repayment of borrowings
- Top “n” depositors redeeming earlier than maturity
- Top “n” borrowers becoming delinquent or defaulting

These scenarios need to be converted to low-level scenarios, which can help quantify the impacts of such scenarios. These models can also be created using some time series statistical methods, say, multiple equation vector-auto-regression (VAR) models and their impulse responses to different shocks. The following are a few methods practiced by many banks:

- Using historical percentile from available time series, for example, 99th percentile of daily deposit outflows
- Develop a model of required variables with important macro variables (say house prices and unemployment rate). Subsequently, feed the worst “n”-year path available of the macro variables into the model. Alternatively, feed into the model a bad scenario from the regulatory stress testing. The resulting “stressed output” is the desired scenario.

Liquidity risk can result from a variety of shocks, and these need to be monitored, controlled, and mitigated at all times.

4.4 Models for projecting new volume

New volume projection models do not follow a specific pattern. For instance, depending upon business complexity, small banks can benefit from simulations based on the models of larger and more complex banks. These steps are generally followed using the following kinds of models (Exhibit 10):

Exhibit 10: Step-by-step activities in new volume projections

Activities	Solutions
Balance sheet growth projections	▪ This is largely strategic decision taken by the board ▪ For a bottom-up approach to new volume forecasts, this acts as a constraint
Business growth projections	▪ Balance sheet growth if further allocated to various businesses by CFO’s office ▪ Models are used for segment-wise growth projections. Such models consider macro-economic projections as inputs. Such macro-economic projections are sourced from internal

	research departments, market research, industry reports, economic surveys, etc. ▪ Scenario analysis and Monte Carlo simulations are also run for various estimates of projections under conservative, realistic, and optimistic scenarios
Constraint of various risk and other limits	▪ Before finalizing the growth projections, it is ensured that such growth will not exceed any policy limits ▪ Such risk positions, derived from hypothetical growth scenarios, are presented to key decision-making bodies, such as ALCO, before being finalized and communicated to individual businesses

4.5 Models for strategic purposes

4.5.1 Funding execution plan

Treasury needs to forecast the funding needs for future months and quarters in order to efficiently run borrowing, lending, or securitization programs at optimized cost. These kinds of models take input information from various asset and liability businesses, such as deposits, loans, and treasury. The model adds the information over the contractual maturities. Thus, it produces the funding gaps at future time periods. There are certain constraints apart from the inputs gathered from the business units, such as maintenance of regulatory or management mandated liquidity buffer, minimum LCR and NSFR requirements, etc. Models of this kind are recursive in nature, as the funding execution plan for period *t* will be treated as input for the period *t+1*. These models are also process-wise complicated in nature, as inputs are judgmentally generated by various business units located across geographies.

4.5.2 Early warning indicators

Banks need to have identified indicators that serve as guides to the likelihood of impending liquidity events. Such indicators are of two types: either they are instigated from the bank's own financial positions, or they are indicated by market dynamics. Examples of market indicators are a bank's share price, banking sector index, bank's CDS spread, exchange rate volatility, systemic credit deterioration/country rating, wholesale funding market turnover/rates, etc., whereas the same from bank's balance sheet dynamics can be outflows from non-maturity deposits, early redemption of term deposits, reputation of bank, adverse news or industry reports, etc.

5. INTRADAY LIQUIDITY RISK MANAGEMENT

Managing intraday liquidity (IDL) presents a real challenge for banks in terms of data, KPIs, measurements, analytics, and reporting. BCBS mandated that regulators establish certain minimum standards to monitor the intraday liquidity management of banks.[6] These were developed in consultation with the Committee on Payment and Settlement Systems (CPMI).

- Tools applicable for all reporting banks:
  - Daily maximum liquidity usage
  - Available intraday liquidity at the start of the business day
  - Total payments
  - Time-specific obligations

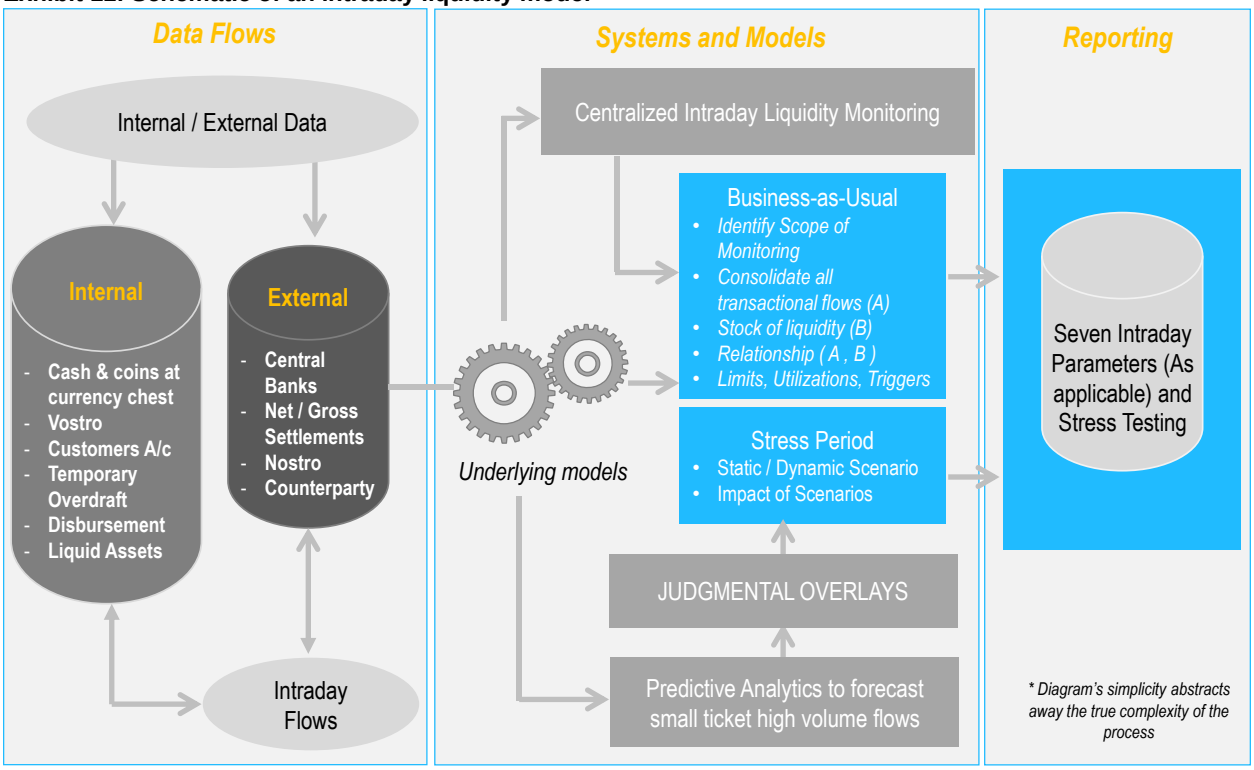
- Tools applicable to banks providing corresponding banking services:
  - Value of payments made on behalf of corresponding banking customers
  - Intraday credit lines extended to customers

- Tools applicable for direct participants:
  - Intraday throughput

Intraday liquidity models involve intense interactions between various systems on a near-real-time basis. A high-level schematic of an intraday liquidity model is given below.

[6] BCBS, Monitoring tools for intraday liquidity / BCBS248, April 2013

Exhibit 11: Schematic of an intraday liquidity model

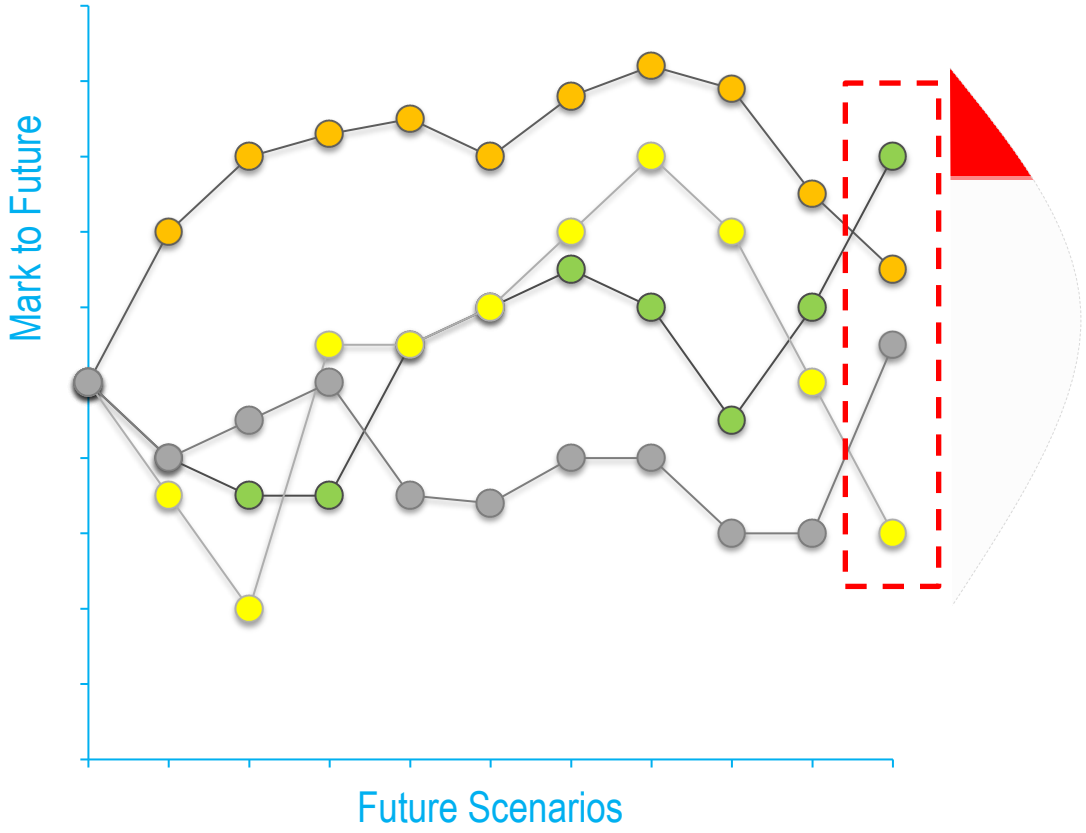


Derivatives are an integral part of banking businesses. Therefore, it is important to capture potential liquidity risk comprehensively by projecting cash flows from margin requirements arising out of derivative contracts. Margin requirements need to cover two parts:

- Variation margin - or current exposure - defined as (unrealized) profit or loss in the portfolio
- Initial margin - or potential future exposure (PFE) - defined as the PFE of the portfolio, that is, the potential maximum loss in the portfolio over the time till close out of the portfolio. PFE at certain confidence levels requires the simulation system to calculate mark-to-future (MtF) distribution, which needs a scenario generating and pricing method.

Although the variation margin takes care of mark-to-market movements, initial margin factors the potential maximum loss over the time till close out of the deal.

Exhibit 12: Mark-to-future (MtF) distribution



To forecast future cash flow need/release, banks must generate probable future scenarios, and subsequently, calculating mark-to-future distribution generation. From this distribution, depending on choice of confidence level which is derived from risk appetite, a risk-based MtF amount is calculated. The broad steps are as follows:

Exhibit 13: Mark-to-future (MtF) distribution and cash requirement

Scenario generation	Mark-to-Future Distribution Generation
▪ Use stochastic models of each risk factor ▪ Estimate parameters from historical data	▪ Calculating derivative price on each scenario and generate MtF distribution ▪ Get PFE at certain confidence level from MtF distribution

Below are additional calculations to consider:

- Changes in valuation of underlying derivatives using mark-to-future calculation (PFE)
- Changes in valuation/credit rating of existing collateral, creating the need to post additional or higher-rated collateral
- Excess collateral placed by counterparty included in HQLA which can be taken back by counterparty
- Change of collateral by counterparty with non HQLA (if allowed to have other instruments)
- Difference between master-netting and without-master-netting agreements
- Extra collateral required due to change in credit rating/financial condition of bank

6. BASEL III FRAMEWORK: LCR AND NSFR

Guidelines on the Basel III framework have been issued since 2010. This is a comprehensive set of reform measures primarily strengthening the capital and liquidity risk management of banks. Major reform in liquidity risk has been introduced through two ratios, liquidity coverage ratio (LCR)[7] and net stable funding ratio (NSFR).[8] LCR is already being calculated and reported in a phased manner; NSFR reporting will begin in 2018.

6.1 LCR

LCR measures a bank's resilience to survive for a 30-day period under severe liquidity stress. This stress event/scenario is largely defined by the regulators. Banks are required to hold high-liquid assets amounts equal to or greater than their net cash outflow over a 30-day period. As an additional requirement, banks are required to hold sufficient intraday cash and collateral to survive net cash outflows caused by crisis events. Since the scenarios are largely defined by regulators, banks have little role in developing models for scenarios. However, banks can calculate the outstanding balances of various balance sheet components. Models are used for calculating these components - for example, stock of stable deposits.

6.2 NSFR

NSFR measures the structural liquidity risk of a bank's businesses and balance sheet positions. It measures whether a bank has enough stable funding (such as equity capital) to ensure uninterrupted activities on its on- and off-balance-sheet components. At a higher level, it considers the relationship between a bank's settlement obligations (longer term) and available funding. NSFR is used to examine bank's resilience over a protracted stress period, which is, of more than one year Like LCR, this is largely driven by regulator-created stress scenarios, with banks playing very little role in the development of such scenarios.

[7] BIS, Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools / BCBS238, January 2013
[8] NIS, Basel III: the net stable funding ratio / BCBSd295, October 2014

7. MARKET LIQUIDITY RISK AND ITS RELATIONSHIP WITH FUNDING LIQUIDITY RISK

Market liquidity risk is an important risk for capital market participants, such as proprietary trading of commercial banks, investments banks, and corporate treasury functions. Market liquidity risk has an important impact on funding liquidity risk. Such funding requirements are driven by the following factors:

Funding requirement =

+ Current position + (haircuts + initial margin) + contingency funding needs
+ Collateral securities annexure (CSA) + collateral requirement + variation margin
+ CSA VaR

- **Haircuts and initial margins**: When physical hedges like stocks and bonds are traded and refinanced through SBL/Repo, a haircut is required depending on the underlying asset. When futures are traded to hedge the exposure, an initial margin is to be posted to the exchange.
- **Contingency funding needs:** It is expected that initial margins and haircuts might change in times of stress.
- **Collateral securities annexure (CSA), variation margin, and cash pool security-based lending (SBL) collateral:** These requirements are mainly due to market movements and are to be “pledged” on a daily basis.

    - CSA is a result of the movement in OTC derivatives
    - Variation Margin is daily payable/receivable by the exchange through clearing
    - Cash pool SBL collateral is the daily posting of collateral when stocks or bonds are used to hedge security exposure out of the sold products to the clients

8. CONCLUSION:

Liquidity risk can result from a variety of shocks, and it can materialize at any time. A sound liquidity risk management policy along with constant monitoring of balance sheet dynamics is an absolute must to navigate through the peaks & troughs of liquidity risk management. Neglecting even a simple of critical item can lead to significant exposure to liquidity risk and make a financial institution insolvent. Banks need to strike a balance between the numerous business benefits of enhanced visibility of their liquidity risks and any so-called unintended consequences. Banks with strong liquidity management processes in place and superior visibility of available liquidity and exposures will march ahead of the curve but those banks that continue to operate blind without visibility of their exposures, will be left behind the curve and won't understand what risks they are exposed to. Hence there is a constant need to understand the liquidity risk management cycle & closely monitor balance dynamics.

Diligent monitoring and reporting are key to effectively managing liquidity risks and there is always a need to identify and constantly evaluate the optionality of balance sheet items & regularly review all behavioural risks inherent within the balance sheet. This requires a strong risk management policy that is constantly monitored in addition to a strategic & proactive balance sheet management.

But before banks can realise the strategic and operational benefits of monitoring their liquidity risk, they need to overcome various challenges, the most difficult one is to capture timely and quality data from their own internal IT and operational silos, as well as from correspondent banks. Real-time liquidity & intra day liquidity reporting is already a reality & overcoming the data & system challenges will be a key first step to start a robust liquidity risk management strategy at any financial institution.

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