

Creating an effective IT infrastructure for calculating the liquidity coverage ratio on a daily basis

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Agenda

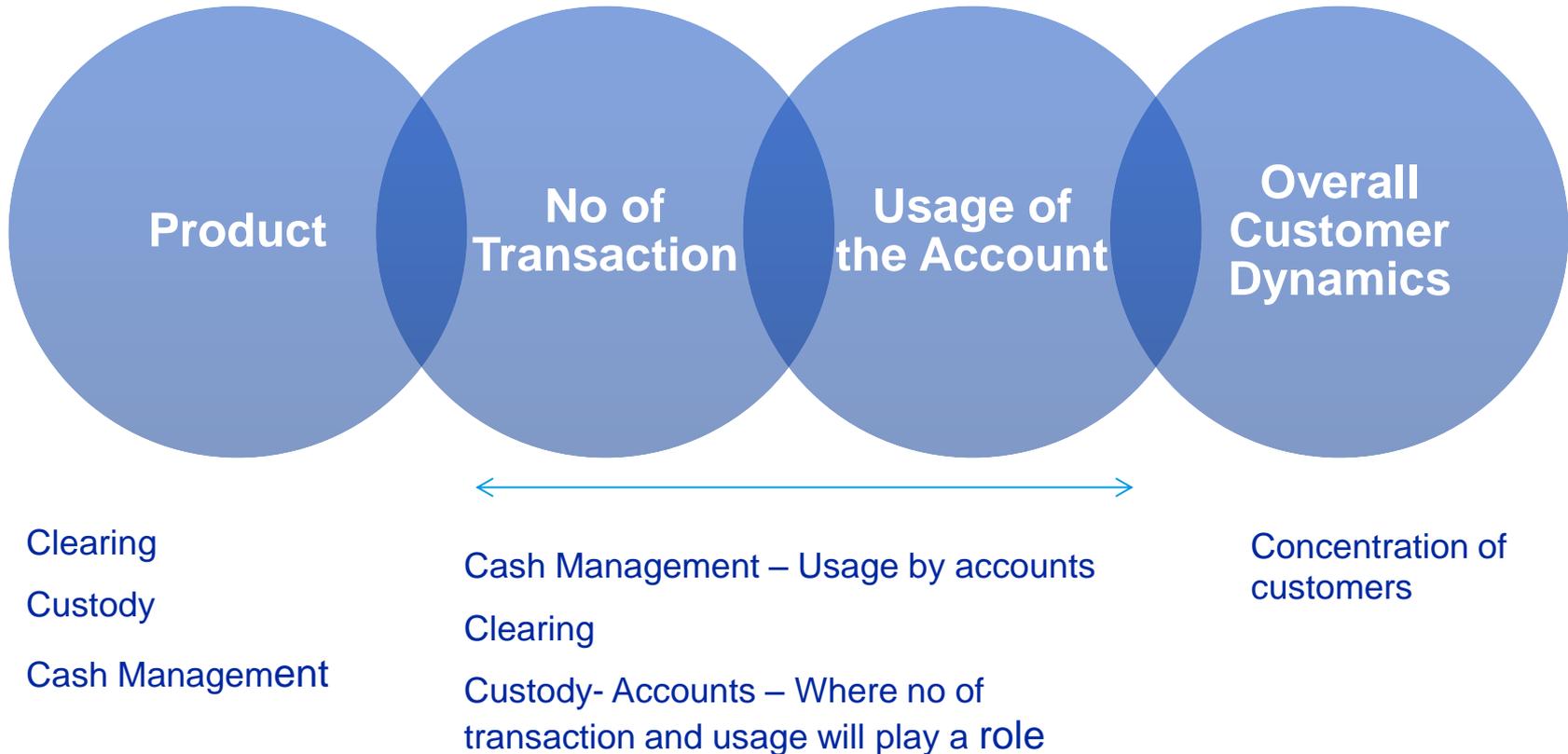
- » **Understanding the IT requirements**
- » **Determining what the regulators want to see**
- » **Leveraging the infrastructure for a comprehensive liquidity monitoring system**
- » **Building effective reporting structure for daily submission and FR 2052a reporting**

Understanding the IT requirements

US LCR is Data Intensive

- » Requires a unified view of customers
- » Requires granular data
 - FDIC Insurance
 - Joint and Single accounts
 - Trust accounts and beneficiaries
- » Requires historical data
 - Transactional
 - Established relationship
 - Operational balance

Best Practices for identifying operational deposits



Cash Flows: Calculated or Imported

- » Requires daily cash flows
- » Requires granular cash flows
- » Requires credit information, counterparty characteristics
- » Where do you source the cash flows?
- » Calculated / Imported / Mixed
- » Top down vs. Bottom up

Data Infrastructure: What You Need to Plan For

- » Data frequency
- » Data volumes
- » Data granularity
- » Liquidity characteristics
 - Operational vs. non-operational
 - Stable vs. non-stable
 - Established relationship
- » Cash flows
 - Imported
 - Calculated
 - Mixed approach
- » Data Lineage
- » LCR forecast

Data Quality and GL Reconciliation

- » Reports are on operational data that needs to be reconciled with the GL
- » In a daily process, the reconciliation of the operational data with GL is a challenge
- » Possibility to rely on trial balances for daily submissions
- » Plan for a weekly / monthly fully reconciled calculation / reporting

Financial Products Check Errors

Import set: <All tables>

Refresh counters Check errors Edit... Correct errors...

Select Column Select Relationship Enter a value

Table	OK (%)	Relevant for	Table Type	Rows
ACCOUNT	27.45 %	FDM	DATA	110,...
ACCOUNT_AGG	100.00 %	FDM	CALC	0
ACCOUNT_CONTRACT	100.00 %	FDM	PARAM	0
ACCOUNT_MAN	100.00 %	FCE	DATA	0
AGG_DEAL	100.00 %	FDM	DATA	0
AGREEMENT_CRM_LINKS	100.00 %	FDM	DATA	0
ALM_CONFIG_PARAM	100.00 %	FCE	PARAM	1
ALM_CONFIG_PARAM_BACKUP	100.00 %	FCE	PARAM	0
ALM_RUN_SUBSET	100.00 %	FCE	PARAM	0
AMORTIZING_PROFILE	100.00 %	FCE	PARAM	0
AMORTIZING_PROFILE_I	100.00 %	FCE	REGULAR	0
AMOUNT_MULTIPLIER	100.00 %	ADM	REGULAR	0

Reconciliation with General Ledger

Reconciliation Process

Updated 34 days ago for My Ret Bank, using USG

Unmatched

Deals not in Balance Sheet 50M

Accounts without Deals 40M

Data Matched 188.14M

Total 209.01M

Unmatched Accounts (Top 10 by Difference)

Reconciliation Results Analysis Cube

Account Code	GL Amount	Data Mart Amount	Difference
Deposits	-180,000,000...	-188,550,000.00	8,550,000.00
Loans and Advances given	8,143,000.00	10,460,600.00	-2,317,600.00
Remaining			

Data Adjustments

- » In a daily process, adjusting data is a challenge
- » Best practice
 - Adjust the reports for daily submission
 - Correct the source data for the next calculation / reporting
- » Key points
 - No dependency on source systems improvements timeframe
 - No dependency on change requests for the ETL interface
 - High traceability with a built-in audit trail (who made the changes, when, value before/after)
 - Possibility to keep the initial data version as a reference, as well as the version of data corrected

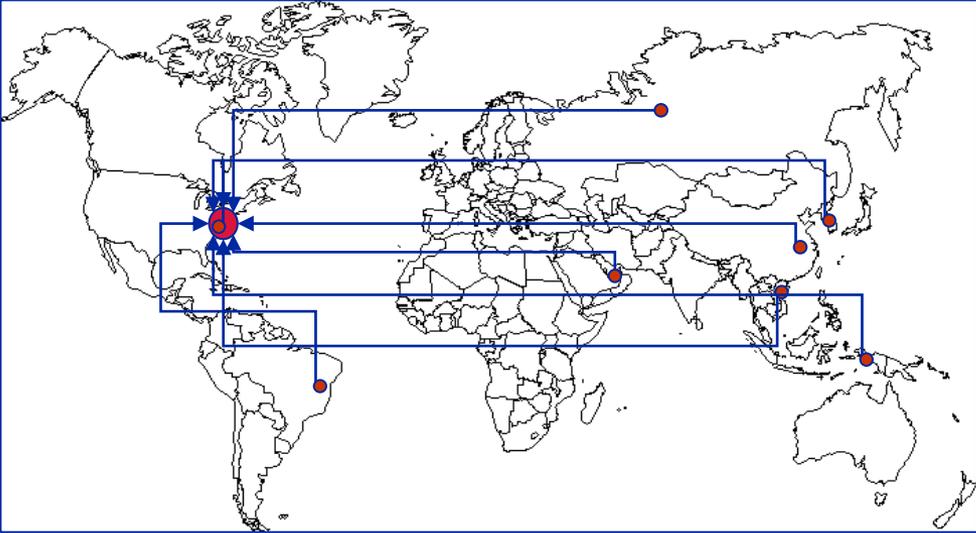
LCR Calculation: HQLA

- » Eligibility & levels
- » Basel III Risk Weights
- » Consistency with Capital / RWA
- » Haircuts
- » Unadjusted and Adjusted Excess HQLA

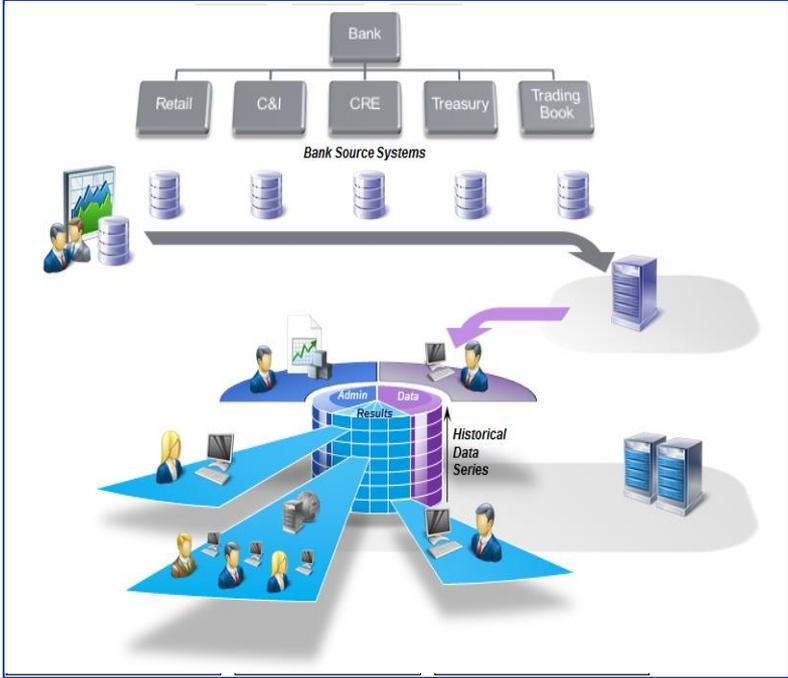
LCR Calculation: Net Cash Outflows

- » Asset class mapping
- » Prescribed rates
- » Reclassification
- » FDIC insurance
- » Balances vs. Cash flows
- » Largest Net Cumulative Cash Outflow day
 - Cash flow granularity
- » Modified LCR

Liquidity Management: Perform at Group Level and at Legal Entity Level



-  HQ where consolidation is processed
-  Affiliate reporting to HQ for liquidity management



Dealing with volumes on a daily basis

- » Granular data for precision often leads to higher volumes
- » Data availability / asynchronicity
- » Data loading
- » Data / Incremental process

- » Best practice
 - Load and process the data as soon as it is available
 - Load once for all regulatory purposes

Liquidity Ratios and Monitoring Tools

» Liquidity indicators

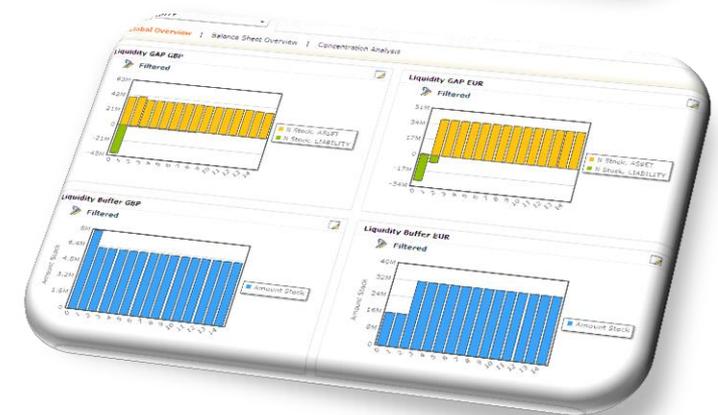
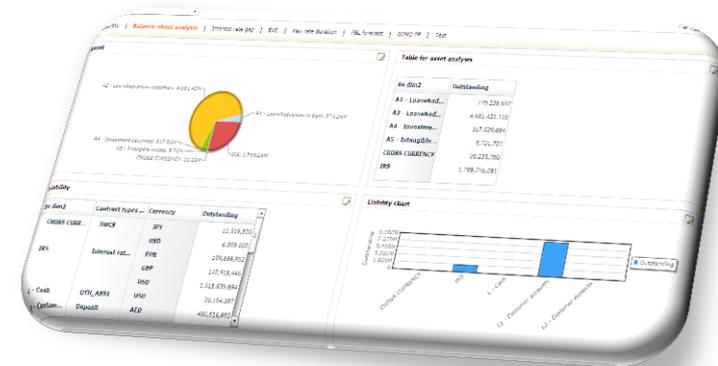
- LCR, NSFR,...
- Balance sheet or cash-flow ratios
- Maturity Mismatch Analysis
- Short term Assets/Short term Liabilities

» Monitoring of the liquidity indicators:

- per group, legal entity,
- business line, currency...

» Concentration analysis

- Analysis of the diversification of funding sources
- Top 20 depositors/lenders including modeling of the client & the bank group structure



Data requirements for Basel III Liquidity compliance

Instrument	Used in LCR?	CF Generation Required?	Additional requirement
Loans	Inflows and Outflows	Yes	Performing status, under committed line
Maturing deposits	Inflows and Outflows	Yes	Notice period, legal right to withdraw
Non Maturing deposits	Inflows and Outflows	No, using balance	Transactional account, operational relationship (servicing type), insured amount
Facilities	Inflows and Outflows	No, using available amount	Received/given, committed/uncommitted
Derivatives	Inflows and Outflows Market Value in the report	Yes	Margins
Security Positions, Repos and Collaterals	High Quality Liquid Assets Encumberment and eligibility of securities Inflows and Outflows (except when eligible for buffer)	Yes	Own account/client's asset with(out) re-hypothecation right, source of contingent funds (flag), out of control of Treasurer
Security referential	Encumberment and eligibility of securities Required in the report	n/a	Issuer, credit rating, market depth, periodic realization
Counterparty/Issuer referential	Encumberment and eligibility of securities Required in the report	n/a	Entity type, Credit rating, Countries
Others	Required in the report	n/a	Market Data, Balance Sheet, Company structure, Downgrade triggers, Capital,...

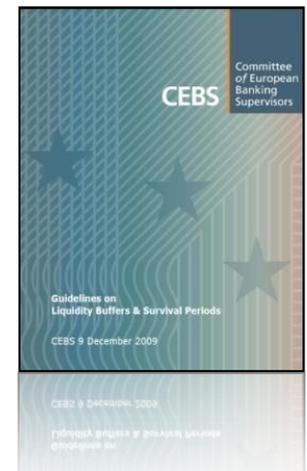
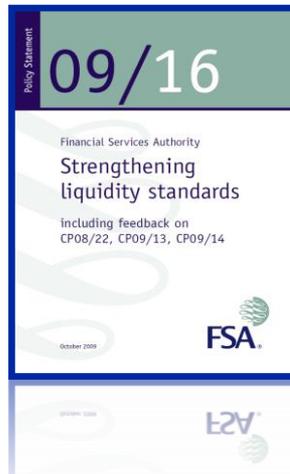
Determining what the regulators want to see

Regulatory Emphasis on Liquidity and Balance Sheet Management Across Regions: Americas, EMEA, Asia Pac

Basel: “... the maintenance of a sufficient **cushion of high quality liquid assets** to meet contingent liquidity needs”

FSA: “A **Contingency Funding Plan** should set out a firm’s strategy for addressing liquidity shortfalls in stressed conditions”

FED: “... a **cushion of liquid assets**, and a formal well-developed contingency funding plan (CFP) as primary tools for measuring and managing liquidity risk”



Responses to an International Survey* that Covered 38 Large Banks from Nine Countries Show that Many Liquidity Management Practices were Largely Deficient

“The most striking example of poor practice was that some banks failed to attribute liquidity costs to assets and conversely liquidity credits to liabilities for some business activities due to poor Fund Transfer Pricing Models and policies”

“Banks’ liquidity cushions were too small to withstand prolonged market disruptions and were comprised of assets that were thought to be more liquid than they actually were”

“Some of the banks that were surveyed treated liquidity as a free good, completely ignoring the costs, benefits and risks of liquidity”

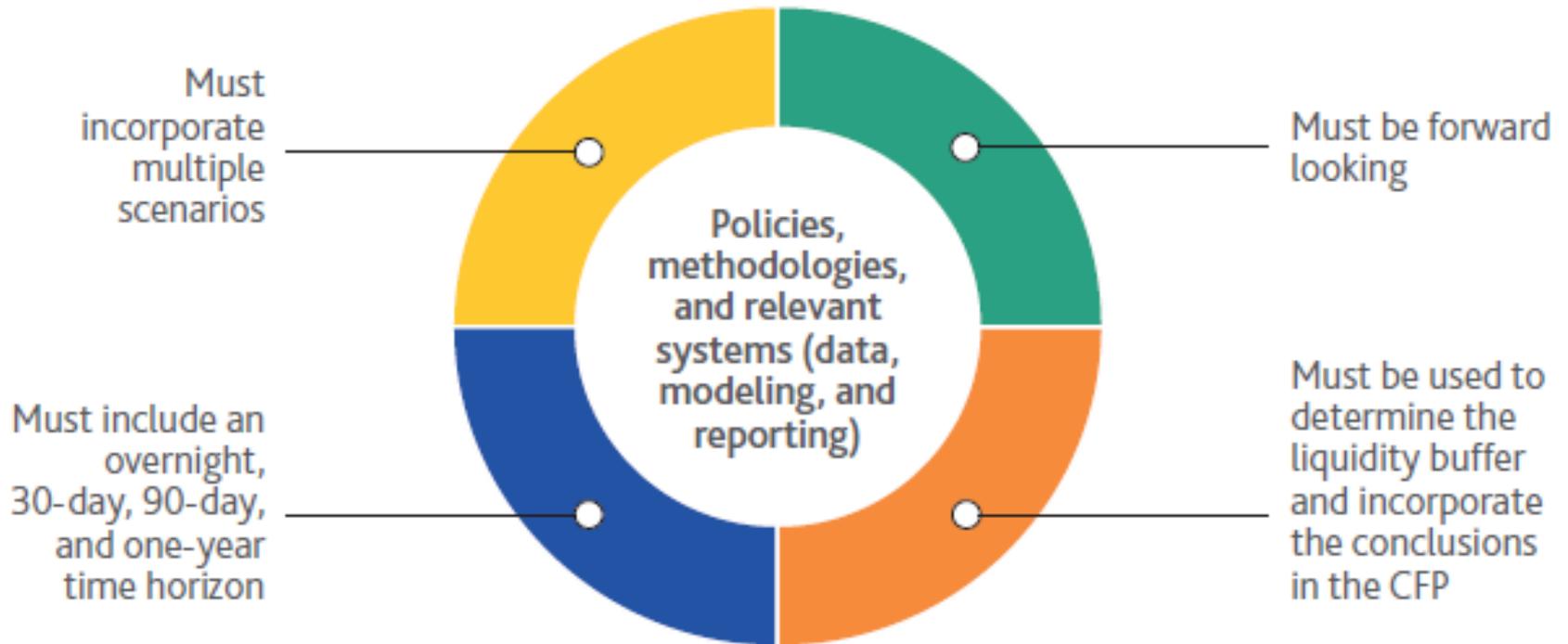
“Banks that participated in the survey also applied insufficient haircuts to many of the traded assets they held. These banks clearly underestimated the likelihood of a market disruption, and the extent to which market liquidity could evaporate”

“Liquidity cushions were not linked to stress-testing outcomes, and scenario analyses were not severe enough to account for prolonged market-wide disruptions”

“In one form or another, all banks that participated in the survey are enhancing the way they manage contingent liquidity risk and their balance sheet models”

* Source: BIS

At a High Level

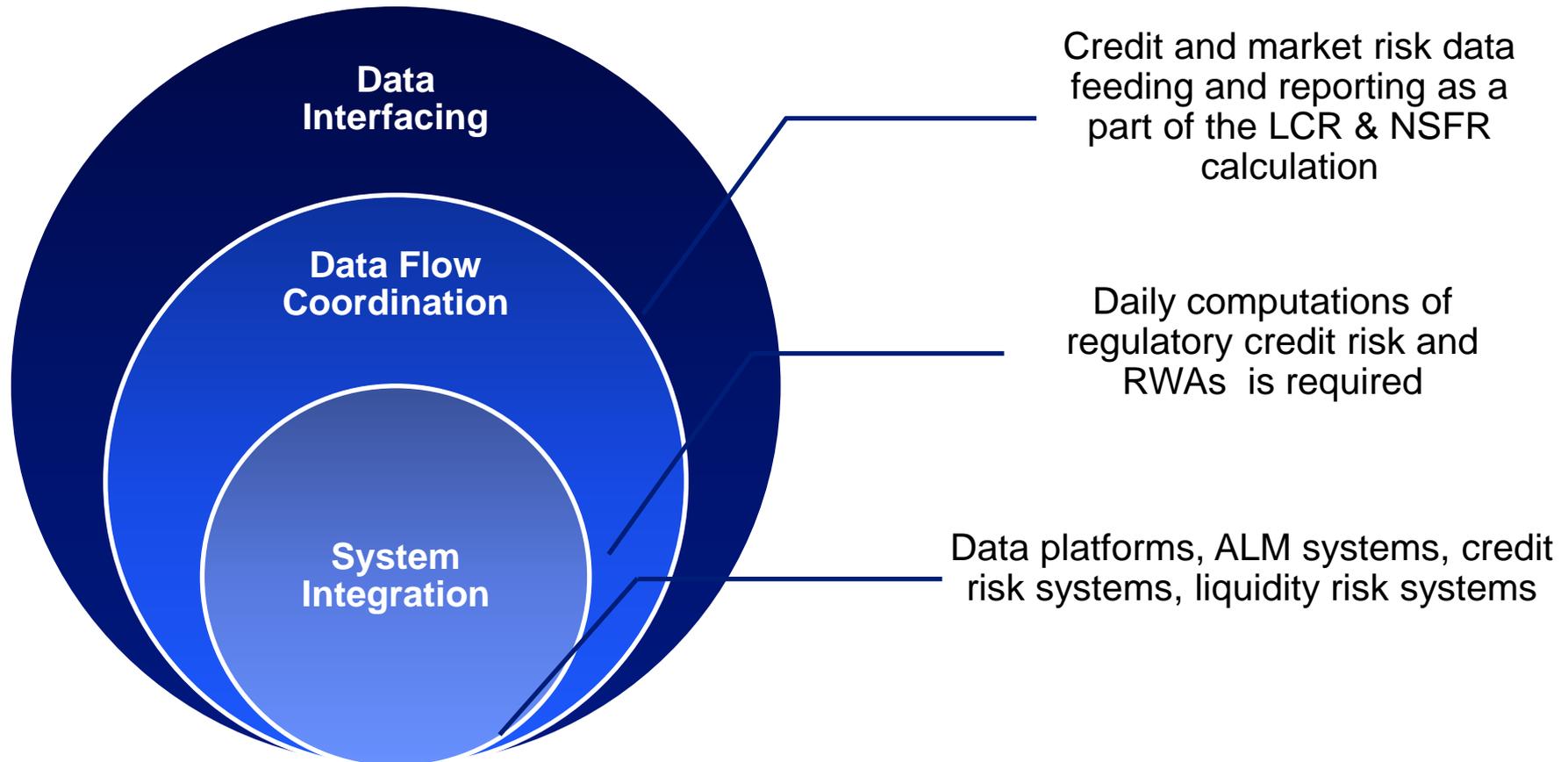


Basel Principles on Liquidity Stress Testing – Overview

- » Conduct liquidity stress tests on a regular basis in accordance with a bank's risk profile
- » Active involvement of senior management in the stress testing process
- » Apply challenger models and alternative, custom scenarios
- » Analyze the behavior of counterparties and other market participants (for example clearing houses)
- » Incorporate the liquidity stress testing process into the bank's strategy, policies and design of contingency and funding plans

Leveraging the infrastructure for a comprehensive liquidity monitoring system

Dodd-Frank Liquidity Regulatory Requirements Present a Unique Integration Challenge Across Risks: An Enterprise-wide Infrastructure is an Advantage



LCR vs Liquidity Stress Testing

Behavior models

- » LCR is one specific liquidity stress testing scenario
- » The infrastructure should be able to leverage the LCR environment to generate behavioral cash flows and apply different stress scenarios

Liquid assets

- » Currently, there are three levels of eligibility (1, 2a, and 2b) in LCR.
- » The same infrastructure should support different levels of eligibility for internal stress scenarios

Time horizon

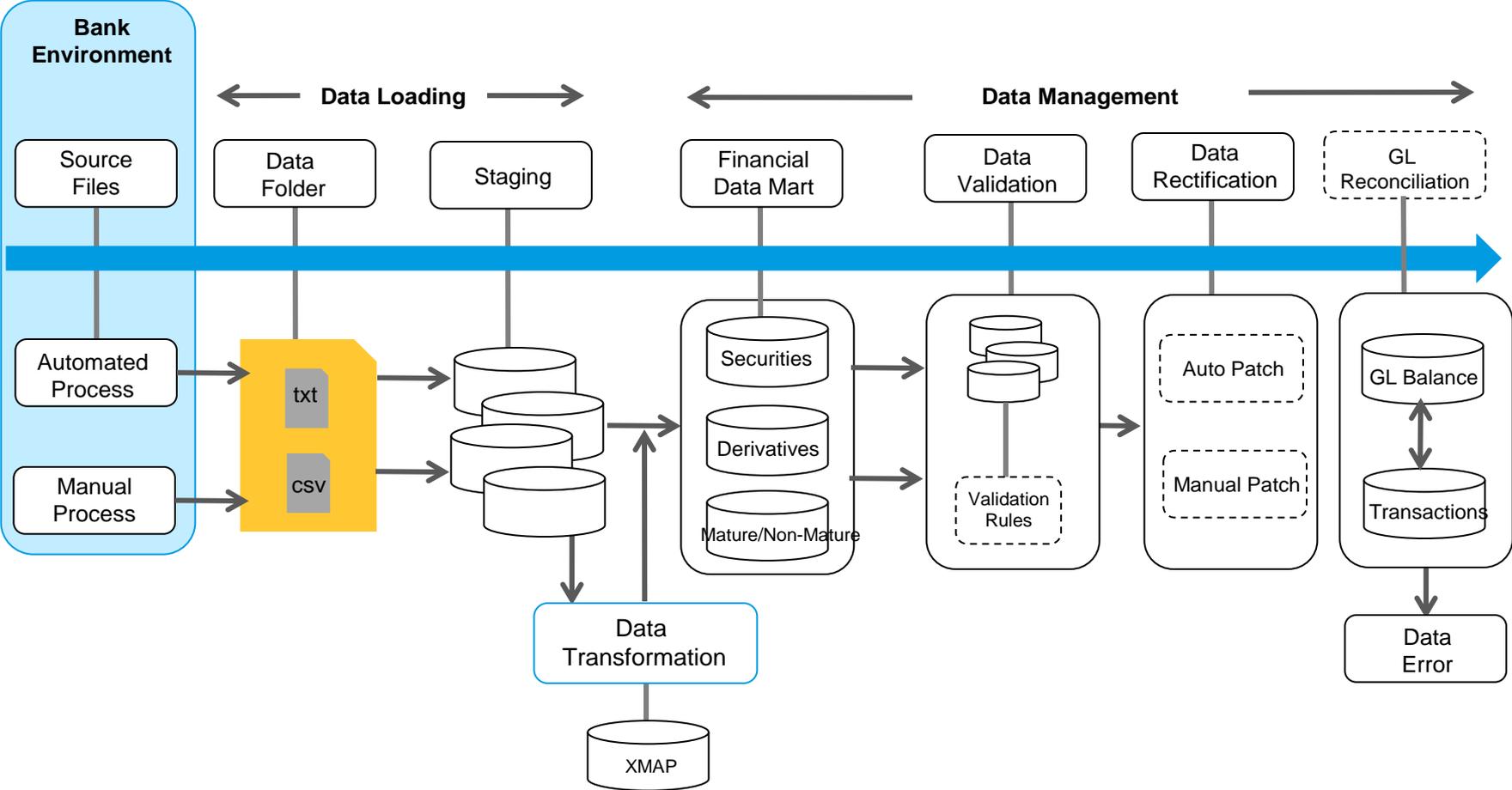
- » The infrastructure should be able to cope with 30 days (LCR), 1 year (NSFR) and more (2052a, FSA 048, EBA ALMM, maturity mismatch reports) with daily cash flows

Building effective reporting structures for daily submissions and FR 2052a reporting

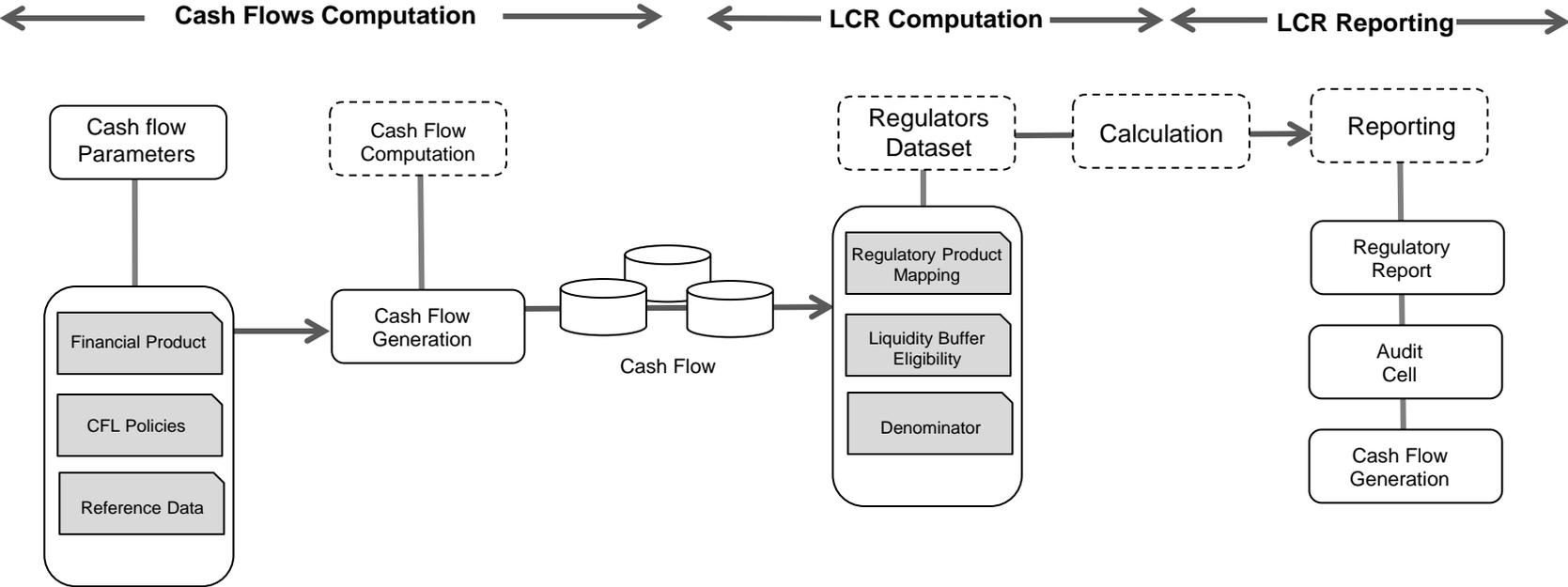
Reporting requirements

- » Able to tie back regulatory reports and operational data (audit)
- » Data lineage
- » Justify all the regulatory treatments
- » Enable adjustments on reports and track all changes
- » Consistency with other regulatory reports
- » Able to leverage one single source of data for multiple reporting purposes

System / Data Flow : Data I/F and Management



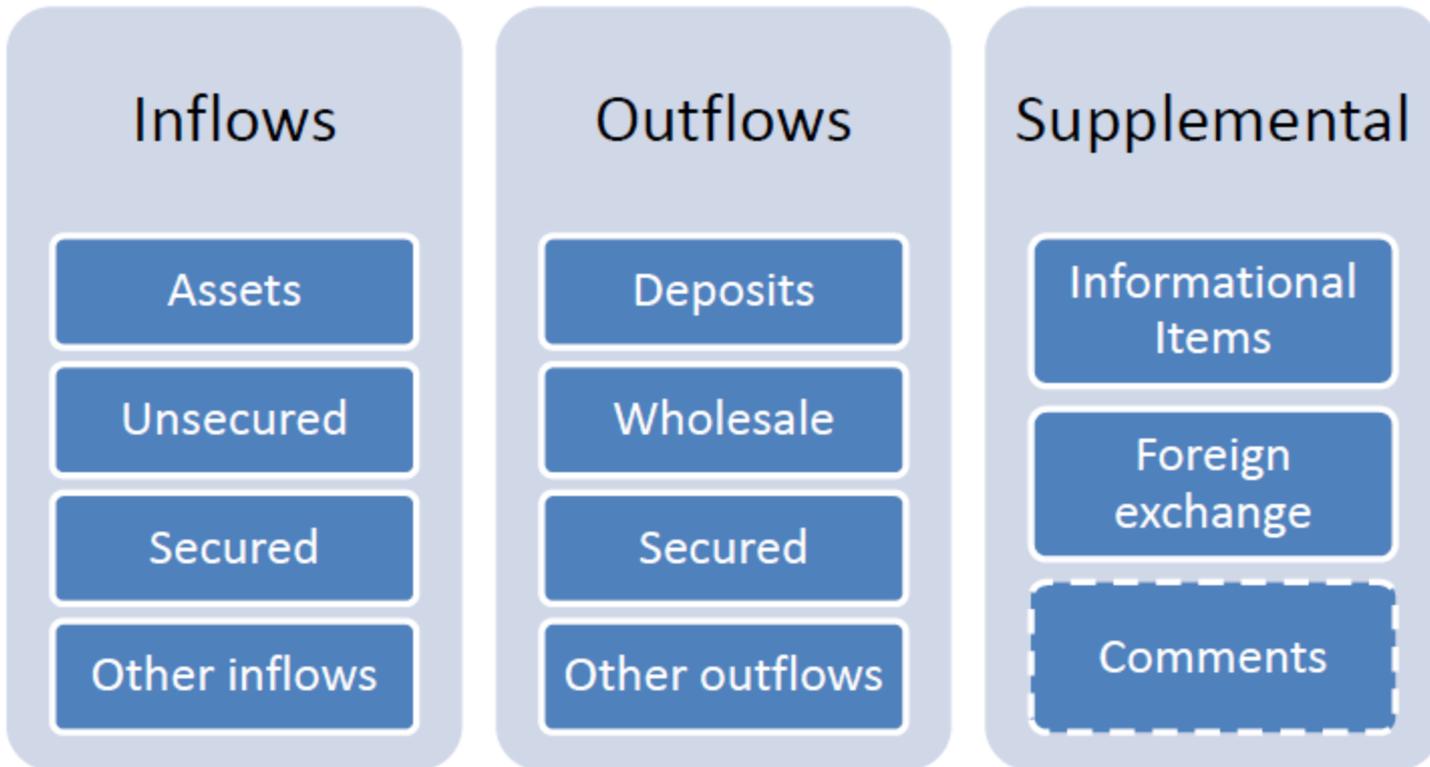
System / Data Flow: LCR Computation and Reporting



2052a – Applicability

Report No.	Reporter description	Freq	First as-of date
FR 2052a	U.S. chartered firms with total assets \geq \$700 billion or with assets under custody of \geq \$10 trillion	Monthly, Daily	03/2015 07/2015
FR 2052a	U.S. chartered firms with total assets \geq \$700 billion or with assets under custody of \geq \$10 trillion	Monthly Daily	07/2015 07/2016
FR 2052a	U.S. chartered firms with total assets $<$ \$700 billion and with assets under custody of $<$ \$10 trillion but, total assets \geq \$250 billion or foreign exposure \geq \$10 billion	Monthly	01/2016
FR 2052a	FBOs with U.S. assets \geq \$50 billion and U.S. broker-dealer assets \geq \$100 billion	Monthly Daily	03/2015 07/2015
FR 2052a	FBOs with U.S. assets \geq \$50 billion and U.S. broker-dealer assets $<$ \$100 billion	Monthly Monthly	01/2016 07/2016
FR 2052b	<i>U.S. BHCs (not controlled by FBOs) with total consolidated assets of between \$10 billion and \$50 billion</i>	Quarterly	12/2014

Reporting Sections



Reporting Dimension

- » Data Element : unique combination of non-numeric field values in a FR 2052a
- » Example: The holding company has four outstanding issuances of plain vanilla long-term debt:
 - 500mm USD – denominated bond maturing in 4 years and 6 months,
 - 1,000mm USD – denominated bond maturing in 5 years,
 - 2,000mm GBP – denominated bond maturing in 10 years, and
 - 250mm GBP – denominated bond maturing in 1 year and 6 months

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Reporting Entity	Currency	Converted	PID	Product	Maturity Bucket	Maturity Amount	Collateral Class	Collateral Value	Collateral Currency	Forward Start Amount	Forward Start Bucket	Internal	Internal Counterparty	Prime Brokerage
1															
2	PARENT	USD	NO	12	LTD - Non-Structured	>4 Yr <= 5 Yr	1500						N		N
3	PARENT	USD	NO	12	LTD - Non-Structured	>5 Yr	2000						N		N
4	PARENT	USD	NO	12	LTD - Non-Structured	>1 Yr <= 2 Yr	250						N		N

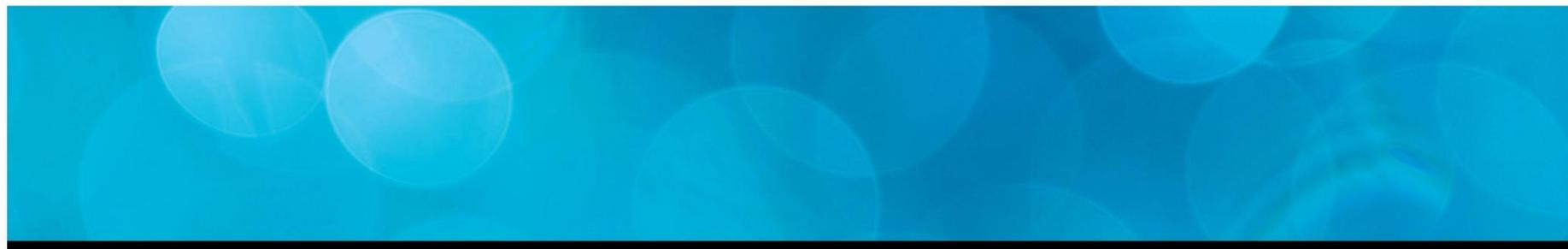
Reporting Facts

- Inflows
 - Inflows represent cash that the reporting entity is contractually owed and expects to receive from fully performing transactions, as well as the reporting firm's ability to generate cash from assets through repurchase agreements, sale, or by exercising other contractual rights.
- Outflows
 - Outflows represent cash obligations that the reporting entity contractually owes, as well as behavioral-based obligations that may give rise to additional cash obligations or increases in required funding, such as unanticipated draws on committed facilities or loss of funding from customer short positions.
- Supplemental
 - Supplemental refers to additional data elements that support the assessment of the reporting entity's funding and liquidity profile, but do not otherwise meet the definition of inflows or outflows.

Currency Management

- » Domestic firms with less than \$250 billion in total consolidated assets and \$10 billion of on balance sheet foreign exposure may report all assets, liabilities, and other informational data elements in USD millions
- » For those institutions, allow reporting of all foreign currency contracts to be reported in USD instead of foreign currencies

Q&A



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