

Learn the Fundamentals of Managing Liquidity Under U.S. Basel III

Originally presented as a part of a Moody's Analytics recorded webinar on May 1, 2014

Agenda

- » **Key Aspects of the Planned U.S. Basel III Liquidity Regulations**
- » **Critical Challenges in Implementing the Liquidity Elements of U.S. Basel III**
- » **A Best Practice Framework for Delivering Compliance with U.S. Basel III**

Key Aspects of the Planned U.S. Basel III Liquidity Regulations

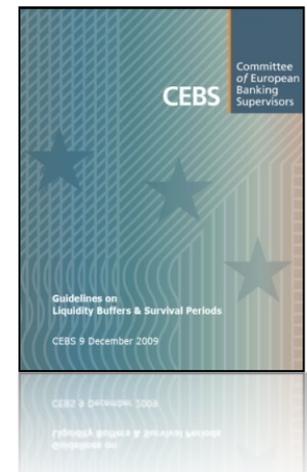
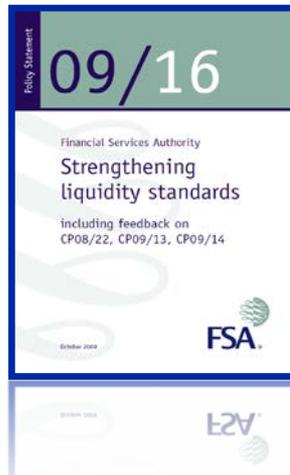
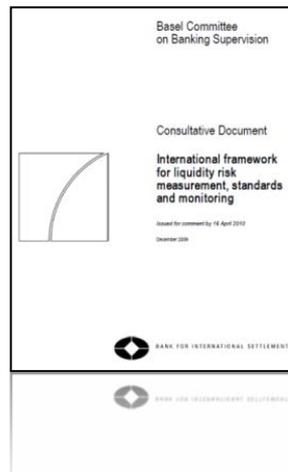
Anna Krayn, Director, Solution Specialist, Moody's Analytics

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”



Basel Principles on Liquidity Stress Testing – Overview

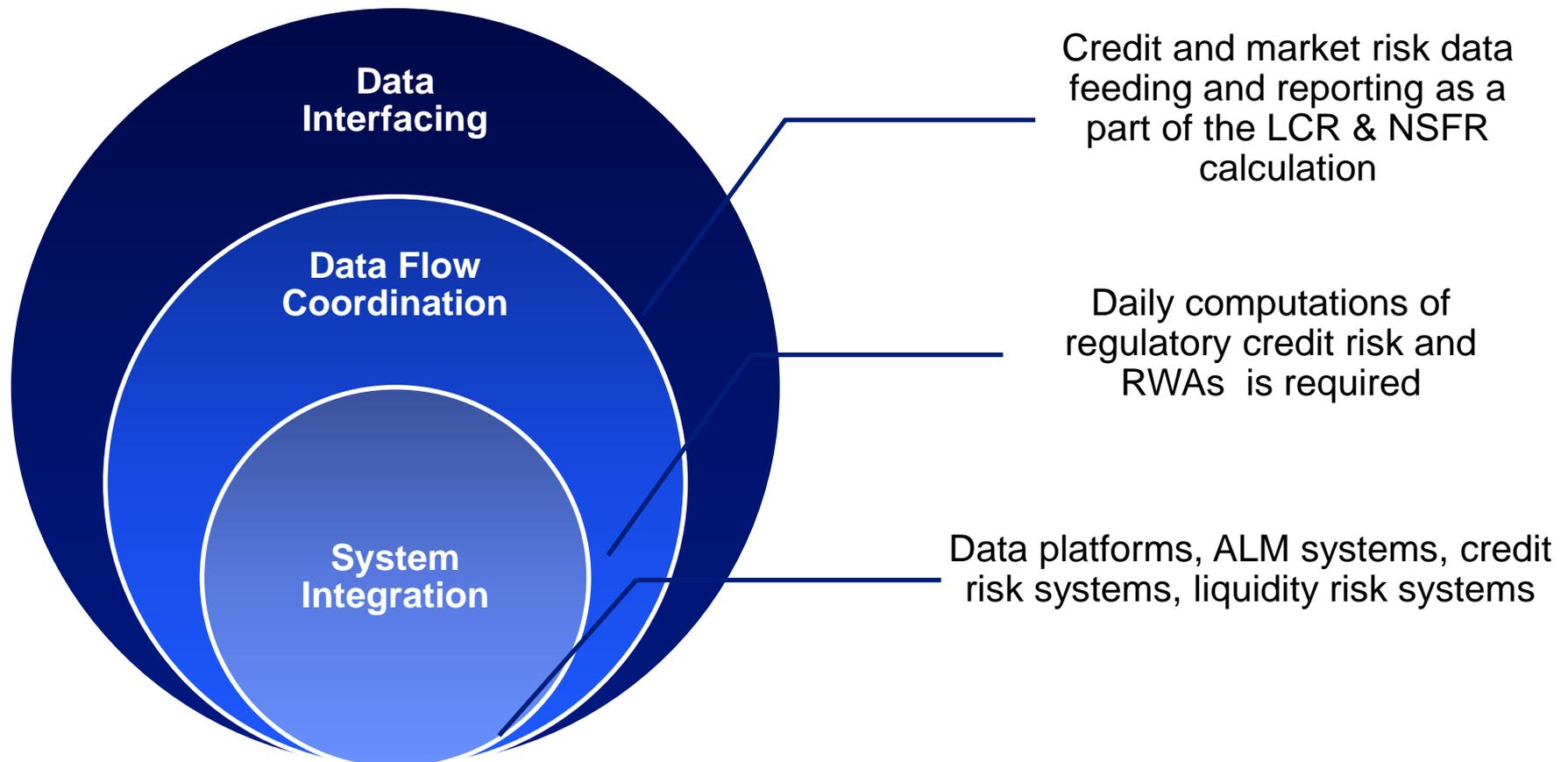
- » Conduct liquidity stress tests on a regular basis in accordance with a bank's risk profile
- » Active involvement of senior management in the stress testing process
- » Apply challenger models and alternative, custom scenarios
- » Analyze the behavior of counterparties and other market participants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

FBO & BHC will be Subject to Liquidity Stress Testing by the Federal Reserve

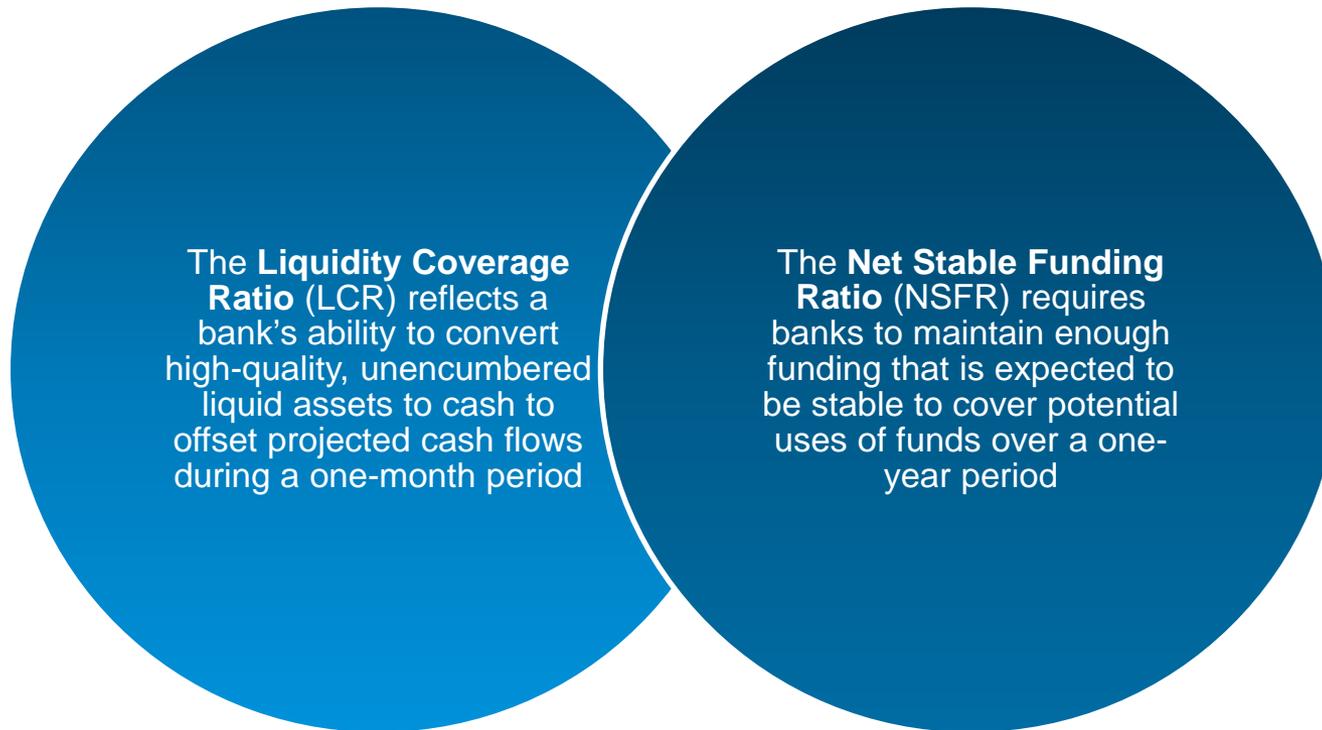
- » The Fed has provided guidelines on implementing effective liquidity stress testing frameworks and expectations for bank Holding Companies (BHC) and Foreign Banking Organization (FBO) from scenario, modeling, and governance perspectives.

Type	Total Assets	Requirements
BHC	> \$50bn	<ul style="list-style-type: none"> <input type="checkbox"/> 30d liquidity buffer <input type="checkbox"/> Monthly stress test <ul style="list-style-type: none"> ▪ Overnight, 30d, 90d, 1y, custom horizons ▪ Regulatory driven and custom scenarios (driven by business model) <input type="checkbox"/> Results will be reported to the Fed
FBO	> \$50bn total assets and/or > \$50bn US assets	<ul style="list-style-type: none"> <input type="checkbox"/> 30d liquidity buffer <input type="checkbox"/> Monthly stress test <ul style="list-style-type: none"> ▪ Overnight, 30d, 90d, 1y, custom horizons ▪ Regulatory driven and custom scenarios (driven by business model) <input type="checkbox"/> Results will be reported to the Fed
FBO	< \$50bn US assets	<ul style="list-style-type: none"> <input type="checkbox"/> Annual stress test <input type="checkbox"/> 30d, 90d, 1y horizons <ul style="list-style-type: none"> ▪ Basel compliance: Consistent with Basel Committee's liquidity principles <input type="checkbox"/> Results will be reported to the Fed

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



Increasing Liquidity Requirements Will Become a Constraint for U.S. Financial Institutions: LCR and NSFR



Banks will be required to calculate and report these projected outflows based on a scenario set by supervisors and regulators that will incorporate conditions similar to those experienced during the 2007-2008 crisis

* Source: Moody's Analytics

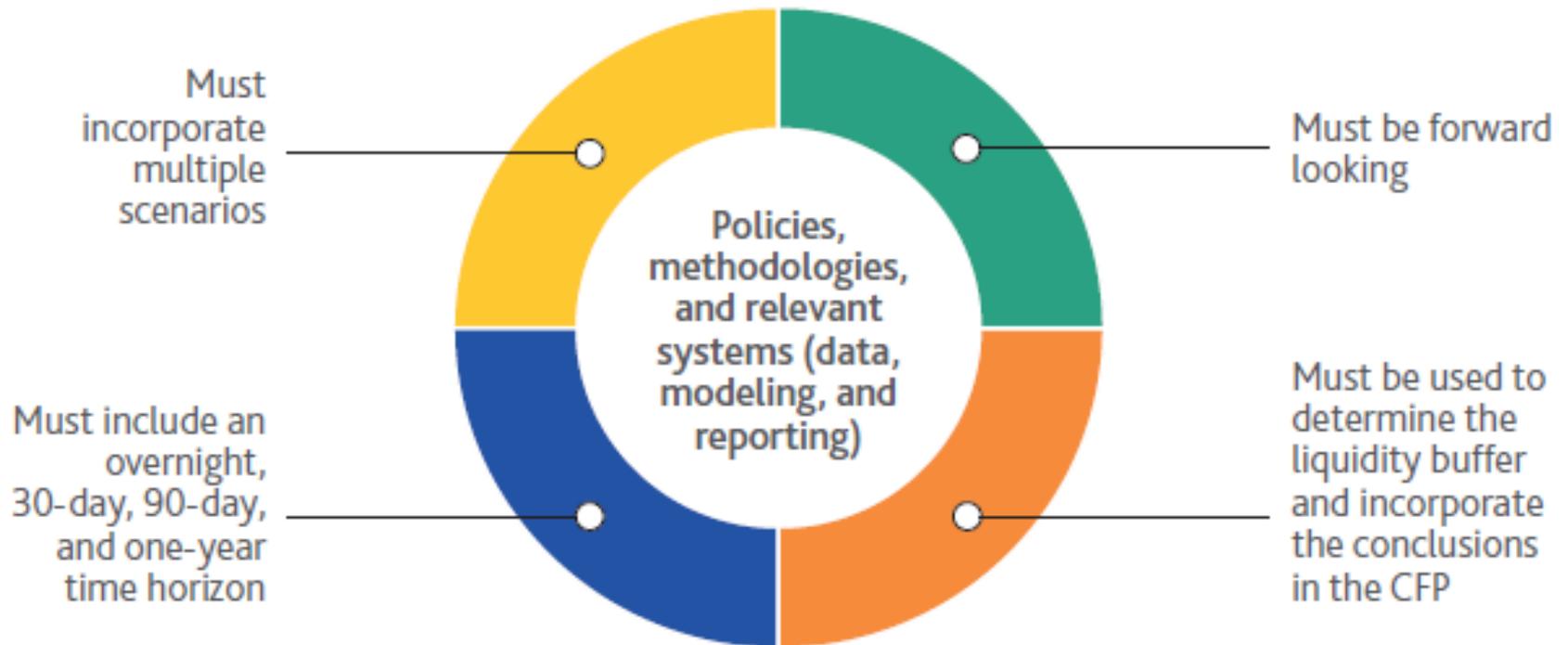
The Response to the Regulations: Institutions are Improving Their Business Models, Balance Sheet Composition, and Liquidity Management Platforms

- » Portfolios with shorter maturities, simpler deal structures, limited exposure to illiquid assets, and increasing competition for deposits
- » Leverage internal behavioral models, exploit hidden competitive advantages and reduce their liquidity-driven regulatory, collateral, and funding costs
- » Including institution-specific, forward-looking behavioral assumptions on the cash flow analysis and liquidity ratios. The stress testing calculation has significant advantages over a rule-based approach because the balance sheet composition, strategy, and funding profile are taken into account in the simulation
- » More realistic results produced through the better management of assets and liabilities' behaviors to maximize customer stickiness: opportunity for return enhancement over using standard behavioral assumptions in ALM systems that often don't accurately reflect an institution's business model

Critical Challenges In Implementing the Liquidity Elements of U.S. Basel III

Olivier Brucker, Director, Moody's Analytics

At a High Level



US LCR vs. Enhanced Prudential Standards

Behavior models

- » No behavioral assumptions for calculating the liquidity stressed metrics (i.e. deposit run-off rates, funding run-off rates...) have been provided with EPS
- » Covered companies need to develop their own behavioral assumptions and their own scenarios with EPS

Liquid assets

- » Currently, there is a single level of highly liquid assets with EPS versus three levels (1, 2a, and 2b) in LCR.
- » Haircuts are not prescribed in EPS but must be applied
- » LCR Proposed definition of liquid assets is narrower than Basel III: Cash, securities issued or guaranteed by the U.S. government, a U.S. government agency or a U.S. government sponsored entity

Liquidity Stress Testing: Characterizing the “Perfect Storm” for Determining the Balance Sheet’s Resilience

Credit Migration

- A significant downgrade of the institution’s public credit rating

Deposits Run-Off

- A partial loss of deposits

Unsecured Funding

- A loss of unsecured wholesale funding

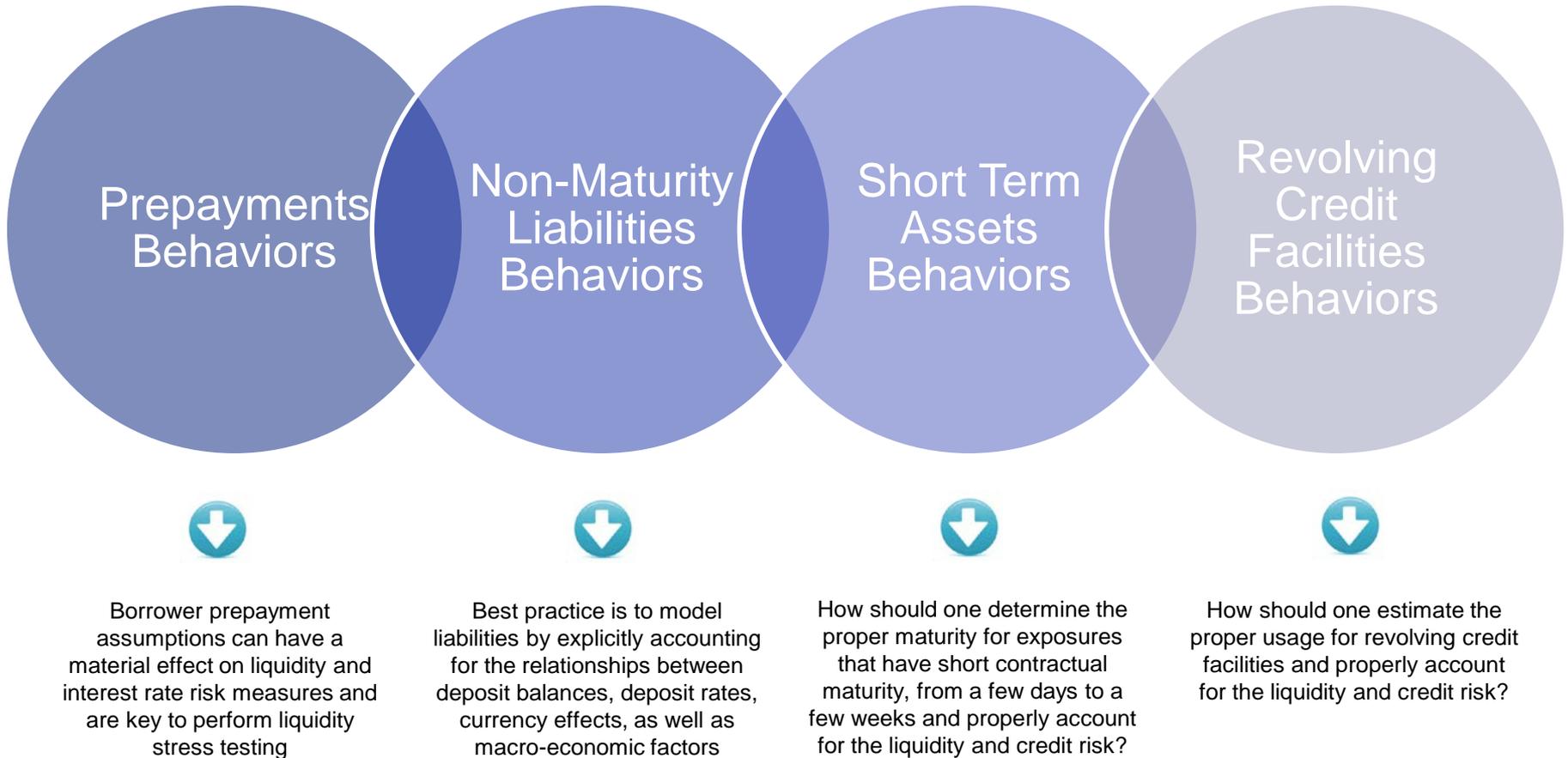
Secured Funding

- A significant increase in secured funding haircuts

Collateral Haircuts

- Increases in derivative collateral calls

Quantifying Behavioral Dynamics



US LCR Prescribes Outflow and Inflow Rates

Financial institutions still need to interpret and apply the rules

- » Established relationship
 - How long has the relationship existed?
 - What type of instruments can be considered?
 - What makes deposit withdrawal unlikely?
- » Operational services & balances
 - How do I determine the nature of the service?
 - How do I determine the threshold of the operational balance?
- » Transactional accounts

US LCR is Data Intensive

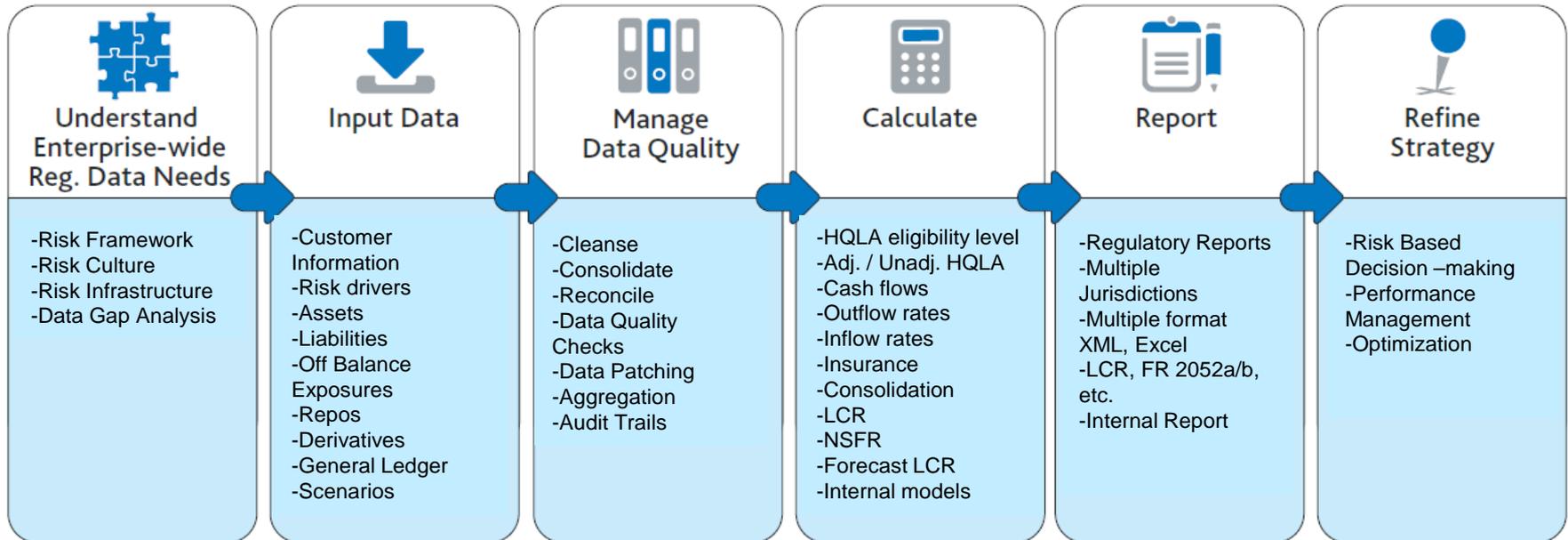
- » Requires a unified view of customers
- » Requires granular data
 - FDIC Insurance
 - Joint and Single accounts
 - Trust accounts and beneficiaries
- » Requires historical data
 - Transactional
 - Operational balance

Cash Flows: Calculated or Imported

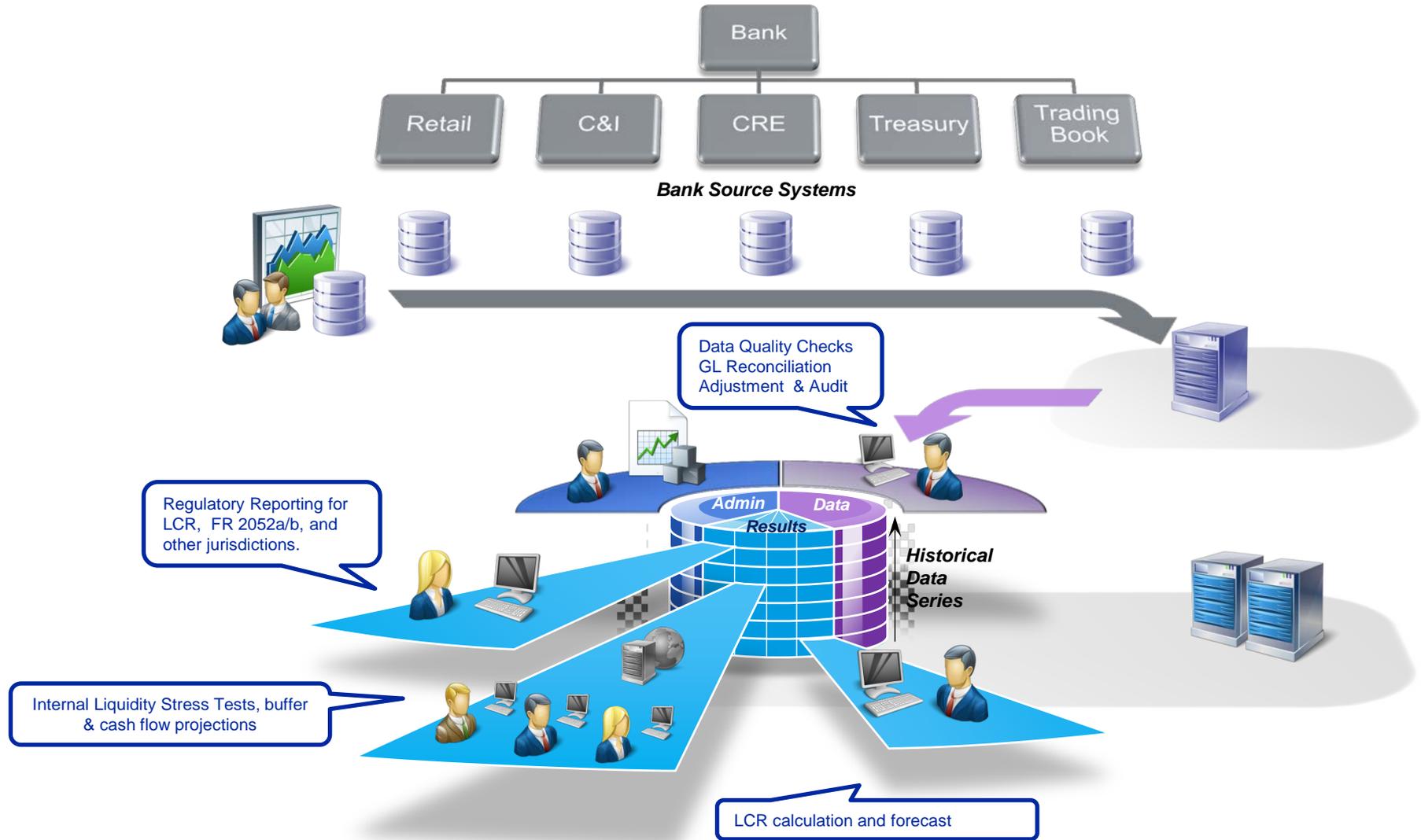
- » Requires daily cash flows
- » Requires granular cash flows
- » Requires credit information, counterparty characteristics
- » Where do you source the cash flows?
- » Multiple scenarios
- » Contractual vs. Behavioral
- » Calculated / Imported / Mixed
- » Top down vs. Bottom up

A Best Practice Framework for Delivering Compliance with U.S. Basel III

Framework for Liquidity Compliance



Integrated Risk and Finance Infrastructure



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
- » Scenarios

Data Quality and GL Reconciliation

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RiskAuthority Navigation search

Home | Results Summary | Results Summary | **Data Summary**

John: 22/09/2011 10:54

Data Quality
BII-DATA

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

31/03/2011 - QA - 0

Reconciliation with General Ledger

Reconciliation Process

Updated 4 days ago

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

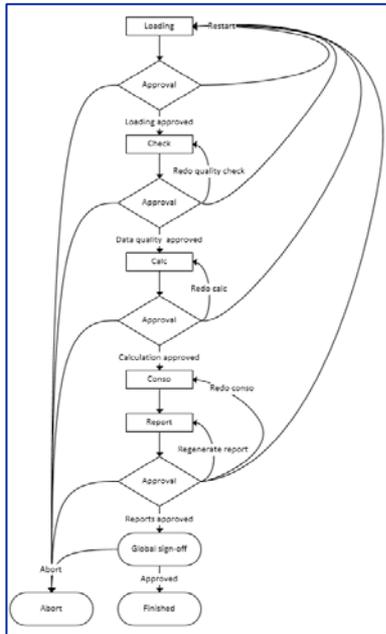
▼ Unmatched Accounts (Top 10 by Difference)

Reconciliation Results Analysis Cube

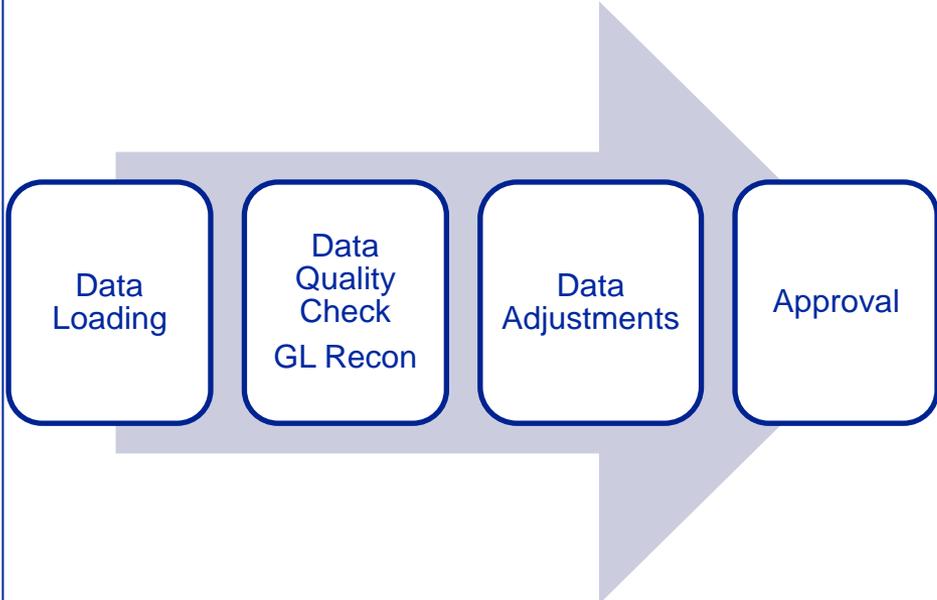
Account Code	GL Amount	Data Mart Amount	Difference
Deposits	-180,000,000...	-188,550,000.00	8,550,000.00
Loans and Advances given	8,143,000.00	10,460,600.00	-2,317,600.00
Remaining			
BS_Acc_24	2,404,876.50	2,373,535.88	31,340.63 1.58 %
OFB_Acc_11	1,046,953.55	10,070,176.99	-9,023,223.44 -861.86 %

Done Local intranet | Protected Mode: Off | 100%

Workflow: Data Quality, Adjustments and Approval



Workflow



<input type="checkbox"/>	Creation Date	Name	State	Done by
<input type="checkbox"/>	01/21/13	Calculation check	Checked	Pierre Allyndrée
<input checked="" type="checkbox"/>	01/15/13	Data quality check	Checked	David Amar
<input type="checkbox"/>	01/21/13	Data quality check	Invalid	Jean Schwerer
<input type="checkbox"/>	01/20/13	Reports approval	Rejected	Jean Schwerer
<input type="checkbox"/>	01/18/13	Global sign-off	Signed-off	David Amar

Approvals

Table	OK (%)	Relevant for	Table Type	Rows
ACCOUNT	27.43 %	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

Data Quality Check

TDepo_Ind_04_wrong_portfolio
RET_DEPO_T
Time deposits by Individual - 03
MyWrongPrtf
FR_INDIV_0010

Adjustment



LCR Calculation: HQLA

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

Legal Reference	Table Name	Liq Product Type	BIS Entity Type	BIS Guarantor Type	Risk Buc...	Standard RW ...	Standard RW New	Eligibility Level	Sub Eligibility
42(b) covered bond	BOND	COVERED_BOND			1			Eligible Level 2	
40.42, financial institution issued bonds	BOND		BANK					Recognized	
40.42, financial institution issued bonds	BOND		BANK_IBPDM					Recognized	
40.42, financial institution issued bonds	BOND		PSE_BANK					Recognized	
40.42, financial institution issued bonds	BOND		SF					Recognized	
40.42, financial institution issued bonds	BOND		INSURANCE					Recognized	
40.42, financial institution issued bonds	BOND		FINAN_FIRM					Recognized	
42(c)	BOND			SUPRA			0	Eligible Level 1	
42(c)	BOND						0	Eligible Level 1	
42(c)	BOND			BANK_SOV			0	Eligible Level 1	
42(c)	BOND			MDB			0	Eligible Level 1	
42(c)	BOND			MDB_PREF_0			0	Eligible Level 1	
42(c)	BOND						0	Eligible Level 1	
42(c)	BOND		SUPRA			0		Eligible Level 1	
42(c)	BOND					0		Eligible Level 1	

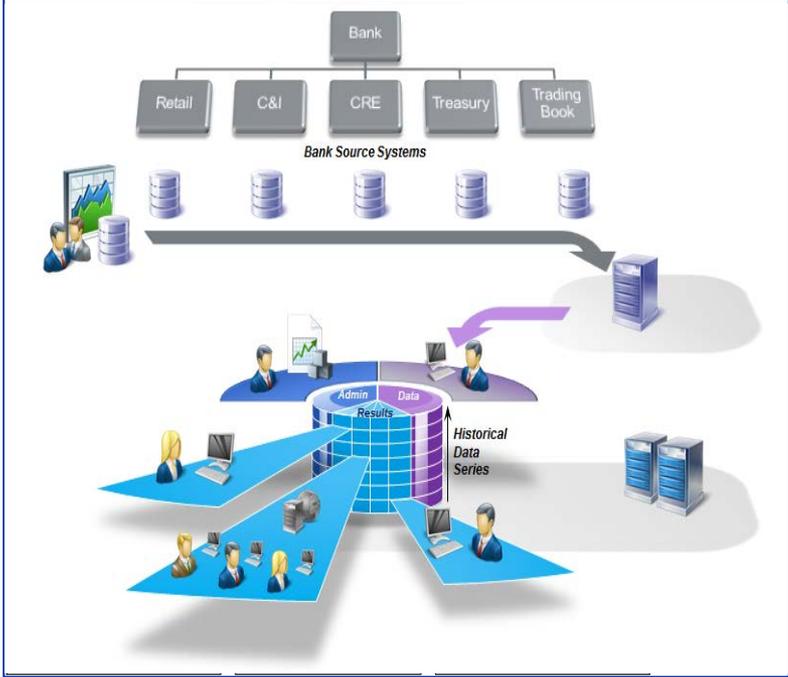
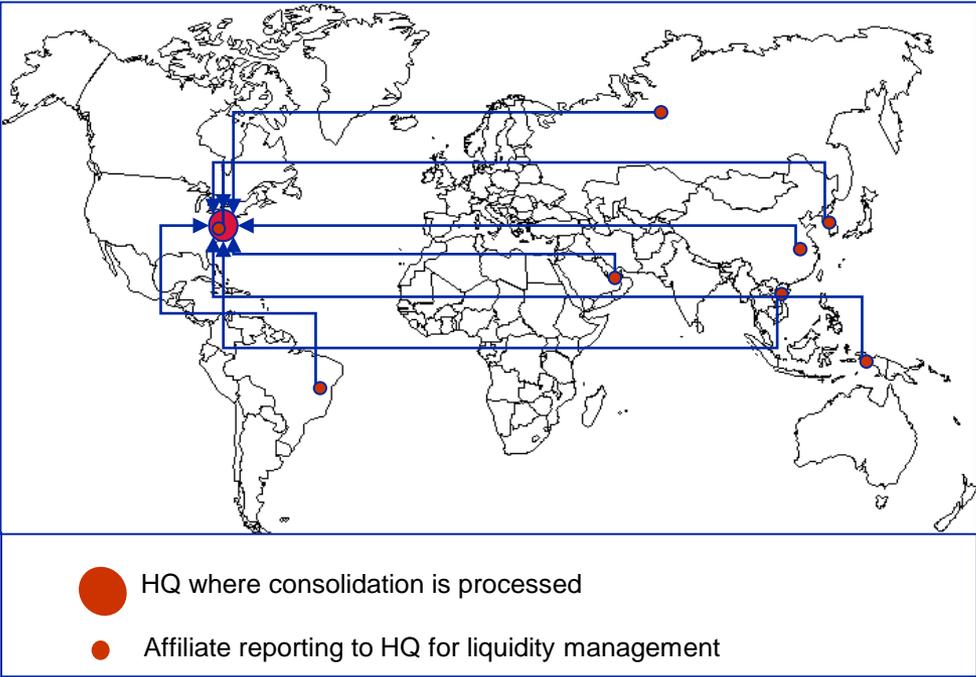
LCR Calculation: Net Cash Outflows

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

» LCR Light

Regulatory Reference Name	Table Name	Liq Product Type	BIS Entity Type	Value Date Status	Maturity Date Status	Outstanding Inflow Rate	CF Inflow Rate
105 no inflow from non fully perfor...	LOANDEPO					0	0
105 no inflow from non fully perfor...	ACCOUNT					0	0
108,109 inflow on reverse repo sty...	REPO			VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from reverse repo ...	LIQUIDITY_FACILITY			VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from reverse repo ...	REPO			VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from reverse repo ...	LIQUIDITY_FACILITY			VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from reverse repo ...	REPO			VD < RD	RD < MD <= LCR Horizon	15	0
108,109 inflow from reverse repo ...	LIQUIDITY_FACILITY			VD < RD	RD < MD <= LCR Horizon	15	0
108,109 inflow from reverse repo ...	REPO			VD < RD	RD < MD <= LCR Horizon	100	0
108,109 inflow from reverse repo ...	LIQUIDITY_FACILITY			VD < RD	RD < MD <= LCR Horizon	100	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0
108,109 inflow from collateral swa...	LIQUIDITY_FACILITY	LIQ_FAC_COL		VD < RD	RD < MD <= LCR Horizon	0	0

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



Liquidity Risk Management

- » Internal Liquidity Stress Tests & Cash flow projections
 - Time horizon: overnight, 30-day, 90-day, 1-year, others
 - Scenarios
 - Behavior models / Internal models
 - New volumes / Balance sheet forecast
 - Security sell-offs
- » Liquidity Buffer Requirements
 - Net Stressed cash flow need
 - Highly liquid assets
- » Forecasting LCR
- » NSFR

Regulatory Reports for Liquidity Compliance

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RiskAuthority

Navigate: **LCR**

Home Zoom Click on a cell to audit

	A	B	C	D	E	F	G	H
Setting	LCR							
Process								
Results	A) Stock of high quality liquid assets							
Reports	a) Level 1 assets							
Reports								
Explore								
		Paragraph nr in rules doc	Amount/ market value			Weight	Weighted amount	
6	Cash	40 (a)	0			1.00	0	
7	Central bank reserves; of which:		8,500					
8	part of central bank reserves that can be drawn in times of stress	40 (b)	8,500			1.00	8,500	
9	Check: row 8 ≤ row 7		Pass					
10	Securities with a 0% risk weight:	40 (c)	4,161					
11	issued by sovereigns	40 (c)	4,161			1.00	4,161	
12	guaranteed by sovereigns	40 (c)	0			1.00	0	
13	issued or guaranteed by central banks	40 (c)	0			1.00	0	
14	issued or guaranteed by non-central government PSEs	40 (c)	0			1.00	0	
15	issued or guaranteed by BIS, IMF, EC, or MDBs	40 (c)	0			1.00	0	
16	Of the amount in row 8 and rows 11 to 15, that which was assigned a rating by an external ratings agency that corresponds to a 0% risk weight		4,161					
17	Of the amount in row 8 and rows 11 to 15, that which was not assigned a rating by an external rating agency that corresponds to a 0% risk weight but which was nevertheless given a 0% risk weight due to the local currency exemption per paragraph 54 of Basel II		8,500					
18	Check: row 16 + 17 ≤ sum of rows 8 and 11 to 15		Pass					
19	For non-0% risk-weighted sovereigns:							
20	sovereign or central bank debt securities issued in domestic currencies by the sovereign or central bank in the country in which the liquidity risk is being taken or in the bank's home country	40 (d)	0			1.00	0	
21	domestic sovereign or central bank debt securities issued in foreign currencies, to the extent that holding of such debt matches the currency needs of the bank's operations in that jurisdiction	40 (e)	0			1.00	0	
22	Total stock of Level 1 assets	39					12,661	
23	Adjustment to stock of Level 1 assets	37	0					
24	Adjusted amount of Level 1 assets	37					12,661	
25								

Report Validation

- » Regulators provide validation & reconciliation rules with other reports

The screenshot displays the RiskAuthority interface with a 'Valuation Details' dialog box open. The dialog shows the following information:

- Formula ID:** 136439
- Status:** Valid
- Value Reported:** [Empty field]
- Formula:** [Empty field]
- Rules Definition:**

$$[\text{FINREP_EBA_T1.1_V_050}] = [\text{FINREP_EBA_T1.1_V_060}] + [\text{FINREP_EBA_T1.1_V_070}] + [\text{FINREP_EBA_T1.1_V_080}] + [\text{FINREP_EBA_T1.1_V_090}]$$
- Interpreted Rules Definition with Values:**

$$[1686237412] = [462638310] + [569558735] + [493616188] + [160424179]$$

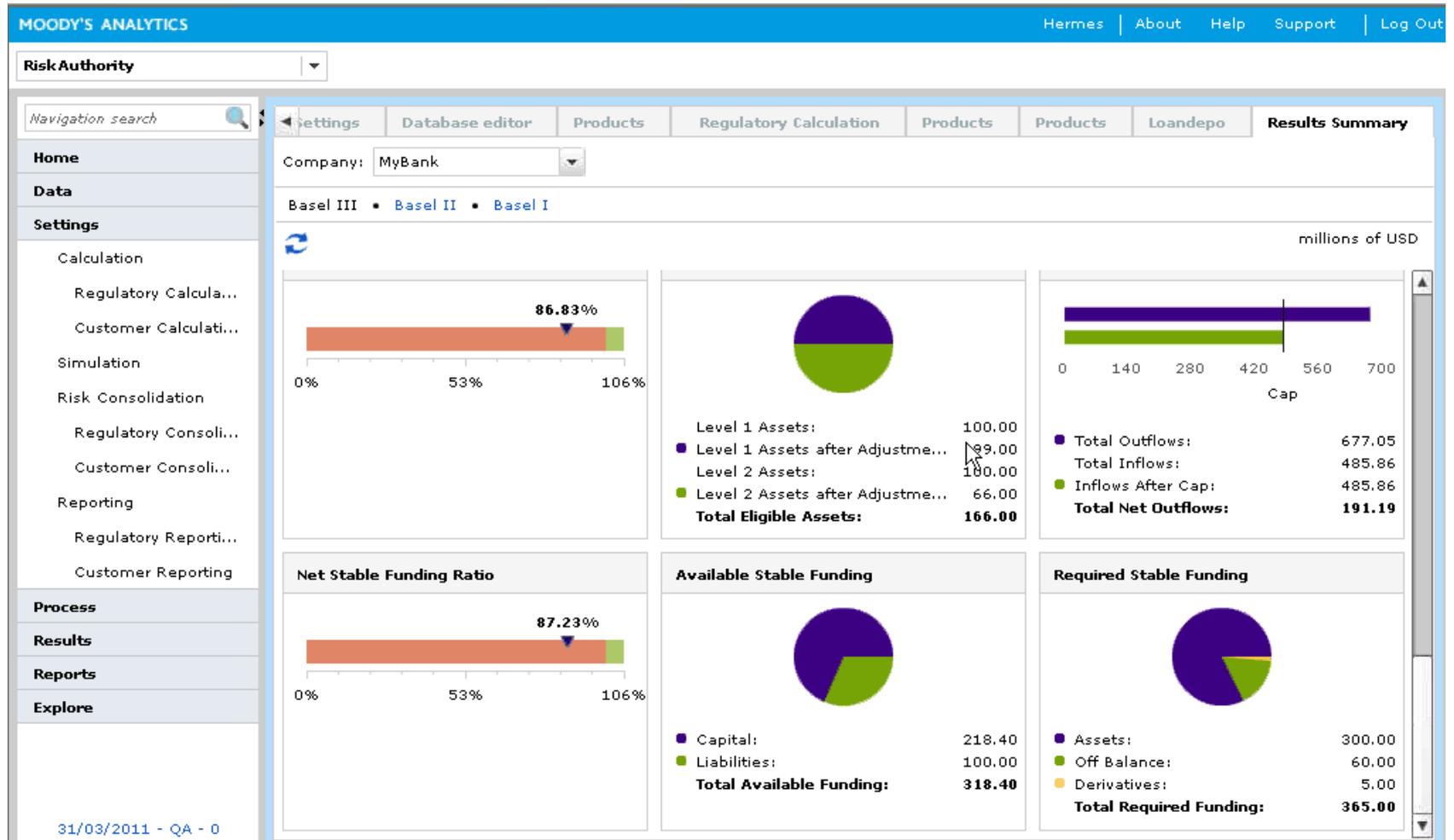
The background shows a 'Regulatory Reports' window with a table of formulas:

Formula	Status	Value	Description
2.T1.1_Check_Cash_balances	Valid		
3.T1.1_Check_ASS_Held_for_trading	Valid		
4.T1.1_Check_ASS_at_FV	Valid		

Below the dialog, a 'Table 1.1.' is visible, showing a balance sheet statement:

Line Item	Description	References based on IFRS	Area hidden in table	Carrying amount
1	1. Balance Sheet Statement (Statement of Financial Position)			
2				
3	1.1. Assets			
4				
5				
6				010
7	010 Cash and cash balances at central banks	IAS 1.64 (1)		1 316 701 408
8	020 Cash on hand	IFRS part 2.2		501 389 078
9	030 Cash balances at central banks	IFRS part 2.2	3	505 567 166
10	040 Other demand deposits	IFRS part 2.2	3	505 568 258
11	050 Financial assets held for trading	IFRS 7.8 (a)(i); IAS 39.9, AG 14		1 686 237 512
12	060 Derivatives	IAS 39.9	7	452 628 210
13	070 Equity instruments	IAS 32.11	3	569 328 735
14	080 Debt securities	IFRS part 1.14, IFRS	3	492 616 188
15	090 Loans and advances	IFRS part 1.14, part 2.2E	7	160 424 479
16	100 Financial assets designated at fair value through profit or loss	IFRS 7.8 (a) (1); IAS 39.9	3	1 572 461 733
17	110 Equity instruments	IAS 32.11	3	707 730 375

Results Summary



Liquidity Ratios and Monitoring Tools

» Liquidity indicators

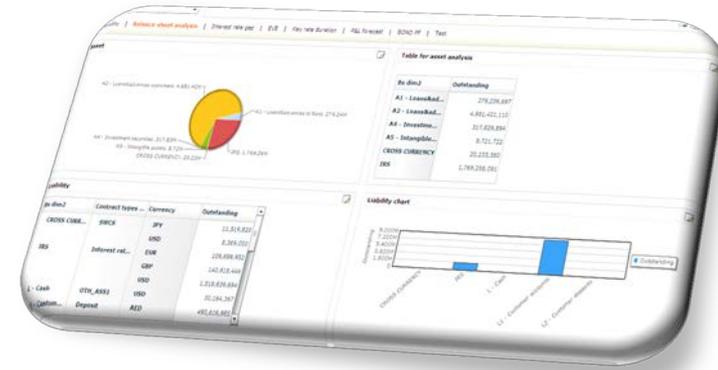
- LCR, NSFR,...
- Balance sheet or cash-flow ratios
- Maturity Mismatch Analysis
- Short term Assets/Short term Liabilities

» Monitoring of the liquidity indicators:

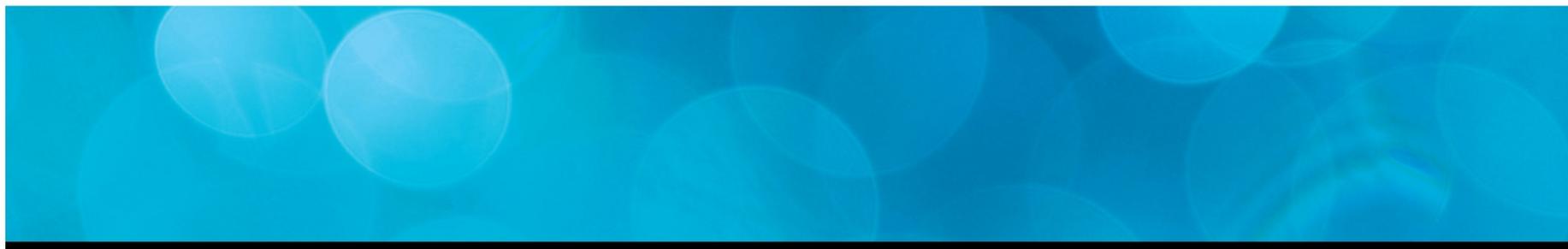
- per group, legal entity,
- business line, currency...

» Concentration analysis

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



Q&A



Thank You

For More Information please visit:

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