



Liquidity management and the new regulatory and market environment: the small bank perspective

UKALMA/AFGAP Summer International Conference
Gouvieux-Chantilly, France
3-4 June 2010

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Agenda

- /// Overview of requirements

 - /// Intro, current state, changing requirements, future state

 - /// Scope of application

- /// Liquidity policy

- /// Liquidity metrics

- /// LAB and CFP

- /// Stress testing

- /// Internal funds pricing

- /// Implications for small banks

Please read and note the DISCLAIMER stated at the end of the presentation.



Introduction

- /// The 2007-08 liquidity crisis highlighted flaws in both the existing regime and its application by firms
- /// Basel II does not (and never did) consider liquidity
- /// Broad international agreement that change is required
- /// The United Kingdom regulatory authority, the FSA, in CP 08/22 and CP 08/24, and subsequently PS 09/16 addressed this for UK banks
- /// FSA: "...the status quo may no longer be acceptable...many institutions will need to significantly reshape their business model over the next few years"



Changing requirements

- /// FSA has initiated number of changes across its member firms:
 - /// The number of Mismatch (gap) limits increased
 - /// Supervisory oversight increased
 - /// Increased international co-operation
 - /// Reporting obligations / frequency increased
 - /// Certain behavioural adjustments have been revoked / reduced (eg., intra-group committed facilities – now count for nothing!)
 - /// Other behavioural adjustments being challenged or disallowed (eg., “stickiness” of deposits)
 - /// New requirements to hold buffers of truly liquid assets



Implications for firms

- /// Improved governance / senior management responsibility
- /// Improved liquidity risk management capability (inc. better use of stress testing and improved contingency funding plans)
- /// Less reliance on short-term wholesale funding
- /// Greater incentive to attract retail time deposits
- /// Higher amount and quality of liquid asset stocks (inc. a higher proportion held in government bonds)
- /// Reduced expansion of bank lending during favourable economic times
- /// Increased likelihood of firm surviving liquidity stress event



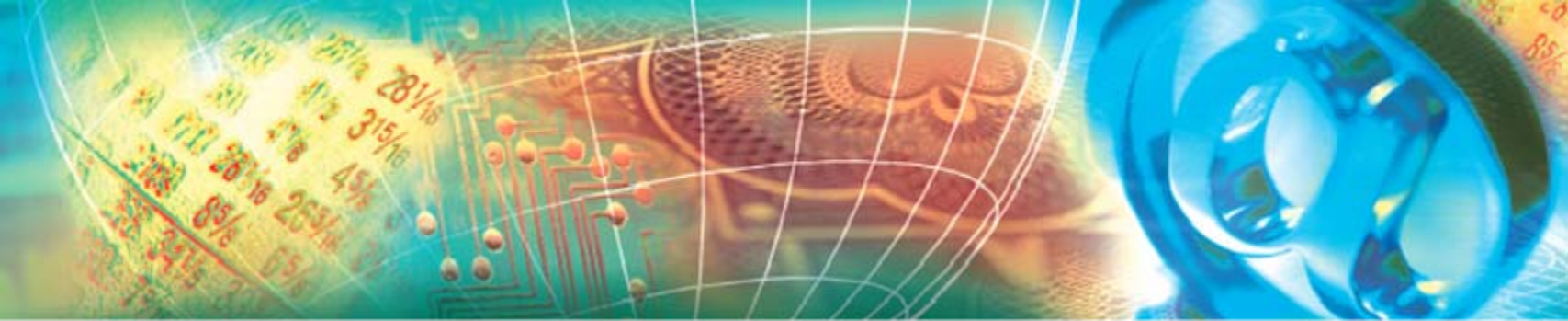
Liquid asset buffer

- /// All firms required to hold buffers of liquid assets
- /// Key part of the new FSA requirement is that banks will have to hold a Liquid Asset Buffer
- /// Expectation that assets will retain both **value** and **liquidity** in a stressed environment
- /// Uncorrelated to institution
- /// Central Bank eligibility of asset is irrelevant!
- /// Not funded in repo, but by long-term (>90 days) funds including retail and wholesale
- /// A portfolio of risk-free assets, funded out of term funding, that can be readily turned into cash (one day notice) if need be



The Liquid Asset Buffer

- /// This must comprise the following:
 - /// *Highly liquid, high-quality government debt instruments as follows: gilts, plus bonds rated at least Aa3 issued by the countries of the European Economic Area (EEA), Canada, Japan, Switzerland and the United States: and*
 - /// *Reserves held with the Bank of England's reserve scheme and with the central banks of the U.S, the EEA, Switzerland, Canada and Japan*
- /// In other words, bonds issued by any of the above
- /// But a firm must have a natural or legitimate axe to hold bonds of issuers outside its BAU activity
- /// Because these bonds pay lower than LIBOR, banks will want to hold longer-term bonds so as not to lose money on the portfolio
- /// This creates interest-rate risk implications...futures are more efficient, for a number of reasons, than interest-rate swaps



Imperatives: the view from the small bank



Implications and imperatives

- /// The message from the FSA Small Banks sub-committee working group (March 2010): October 2010 start of new regime is definite
- /// But it is not “one size fits all”; the assessment is case-by-case
- /// The new regime:
 - /// More robust liquidity regulation generally
 - /// Enhanced local supervision of UK branches of foreign banks and of subsidiaries of foreign groups
 - /// Stricter and more onerous reporting
 - /// More comprehensive suite of liquidity metrics
 - /// IT expense: a complete unified accounting ledger and database for all exposures will assist risk management
- /// Living wills



International developments

- /// Committee of European Banking Supervisors: 'Guidelines on Liquidity Buffers and Survival Periods', 9 December 2009
- /// Basel Committee consultative document: 'International framework for liquidity risk measurement, standards and monitoring', 17 December 2009
- /// European Commission: 'An EU framework for cross-border crisis management in the banking sector', October 2009
- /// Capital Requirements Directive (Directive 2006/48/EC) states that:
 - /// supervision of liquidity of branches should rest with host Member States, but that
 - /// liquidity regulation should be harmonised.
- /// FSA appears to be leading the international consensus.



Implications and imperatives...

/// Overall liquidity adequacy rule

/// BIPRU 12.2.1R:

- /// A firm must at all times maintain liquidity resources which are adequate, both as to amount and quality, to ensure that there is no significant risk that its liabilities cannot be met as they fall due.

/// Excludes:

- /// Group resources
- /// Central bank emergency liquidity facilities

/// Impact of the liquidity adequacy rule

- /// Premise of self-sufficiency
- /// Firm must satisfy the rule relying on its own liquidity resources

/// Disproportionate impact on branches of foreign firms, due to additional asset eligibility criteria. Under BIPRU12.2.3R, branch assets must be:

- /// Under the day-to-day control of the UK branch's senior management
- /// Attributed to the balance sheet of the UK branch.



A word on modifications...

- /// Intra-group liquidity modifications are available for subsidiaries of foreign groups
 - /// A modification approval removes the overall liquidity adequacy rule to the extent of permitted reliance on the foreign parent or other group undertaking
- /// Whole-firm liquidity modifications are also available for UK branches of overseas firms that are subject to the full BIPRU 12 regime
 - /// Approval removes the overall liquidity adequacy rule and in effect removes the UK branch from the scope of the majority of the new rules
- /// But...
- /// If you haven't applied by now, it's too late so the full conventional regime now applies by default



The FSA review

- /// The FSA will assess each firm's compliance with the broad tenets of PS09/16 on a case-by-case basis, for each firm
- /// The assessment criteria can expect to include:
 - /// Qualitative requirements e.g. regularity and granularity of reporting
 - /// Stress testing; infrastructure, scope and output
 - /// Buffer size and composition – high quality, unencumbered assets
 - /// Counter-cyclicality
 - /// Funding self-sufficiency
- /// The FSA will apply its judgment to foreign-owned firms but can be expected to include liaison with other regulators



Check list of deliverables

- /// Impact of liquidity issues during a financial crisis
- /// Liquidity strategy, policy and process. A “liquidity policy statement”
- /// Board responsibility: defined
- /// Tactical level funding strategy
- /// Liquidity risk tolerance
- /// Institution-specific and market-wide stress scenarios
- /// Forecasting funding cash flows over different time horizons
- /// Contingency funding plan
- /// Stress testing and reporting
- /// Link between liquidity and capital adequacy
- /// FSA reporting requirements

The Liquidity Policy Statement

/// The Liquidity Policy Statement is the go-to reference which explains and demonstrates how a bank's integrated approach to liquidity management is performed.

- /// Reflects the Bank's Liquidity Strategy
- /// Reflects the Bank's specific risk appetite

Liquidity Policy Statement
Organisational Structure
Roles and Responsibilities
Procedures
Methodologies
Underlying assumptions
Reporting

Test assumptions on readily available liquidity. These might include:

- Repo – government bonds, bank-name securities, etc
- Sales of such securities
- Sales of less liquid assets

Liquidity risk appetite
Maturity mismatch limit <ul style="list-style-type: none">• Sight – 8 days > 3.00%• Sight – 1 month > 0.00%
Maturity transformation <ul style="list-style-type: none">• Average asset tenor < 24x average liability tenor
Funding source concentration limits <ul style="list-style-type: none">• No individual counterparty > 5% of funding• No source > 25% (except customer deposits)• Customer deposits > 33% of funding
FX mismatch limit <ul style="list-style-type: none">• No mismatch > 25% of currency volume (G7)• No mismatch > €10mn for non-G7 currencies
Minimum cash buffer <ul style="list-style-type: none">• Cash buffer > 2% of liabilities at all times



Liquidity risk measurement metrics

- /// Small banks often rely on only the minimum set of metrics to measure liquidity risk
- /// This will need to change for both FSA regime and “Basel III”
- /// Management often direct Treasury and money market desk behaviour by assigning simple targets (e.g. the Loan-to-Deposit ratio, or target deposit levels). The LTD, however, is not predictive, and is blind to duration, concentration and volatility, three critical aspects of liquidity. Finally, it is not always “aggregatable
- /// Market best practice is for more than the single liquidity metric (LTD) to a broader set of measurements and reports (to complement the LTD).
- /// Liquidity forecasts must be upgraded to incorporate better estimates of deposits/withdrawals on the deposit side, drawings of unused direct commitments on the loan side, and assessment of the quality/liquidity of our near-cash assets.
- /// Post-Lehmans, a crisis may come from a negative gap situation, a withdrawal of customer deposits or loss of interbank liquidity, among other scenarios



Liquidity risk measurement metrics...

/// Self-sufficiency and supportiveness of a business unit

- /// Its ability to operate without support of other Group businesses
- /// Evidence of focus on both sides of the balance sheet
- /// The level to which it creates or relieves liquidity risk
- /// Measure of value of the business unit to the Group, in non-P&L terms

/// Overall level of exposure to roll risk

- /// Measuring asset liability mismatch
- /// Each liability roll is an opportunity to lose funding

/// Early warning of funding stress points

- /// Analysing the cash effects of liquidity gaps
- /// Examining the near term effects of the asset liability mismatch

/// Specific daily funding needs

- /// For planning & managing daily operational funding requirements
- /// For advanced planning of cash or collateral action



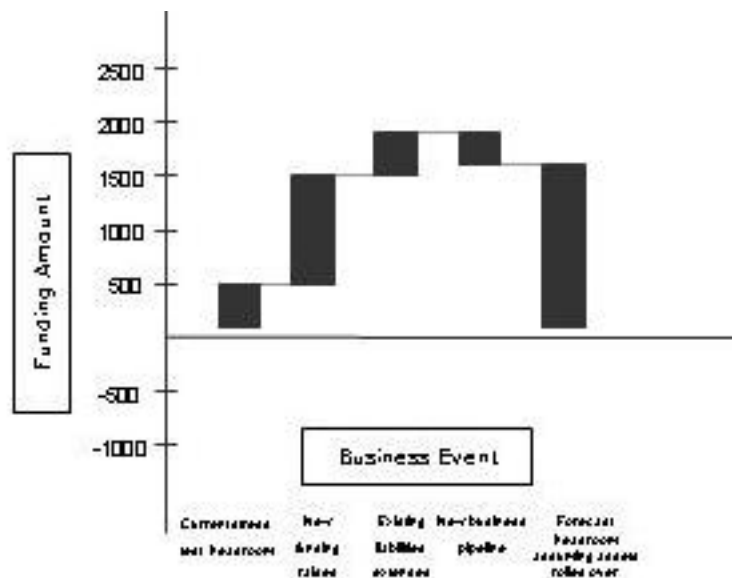
Metrics: Six Baseline Liquidity Reports


- Loan-to-Deposit Ratio
- 1 Week & 1 Month Liquidity Ratios
- Cumulative Liquidity Model
- Inter-company Lending Report
- Liquidity Risk Factor
- Funding concentration report

These reports measure and illustrate different elements of liquidity risk

Surplus funding capacity report

- Report on the amount of funding capacity that exists after taking into account the headroom required to survive a stress event (whether firm-specific or market-wide), the extent that existing liabilities and assets will be rolled over and the amount of new business put on over a given period of time





One more metric...the Basel Committee recommendation

- /// The Net Stable Funding Ratio (NSFR) is part of the BCBS review (expected to be part of “Basel III”)
- /// Stated objective is to encourage more medium and term funding. This metric highlights the level of long-term or stable funding compared to short-term liabilities
- /// Likely to become a key metric for analysts
- /// Unlikely to be set limits....not a “one-size-fits-all” number. Different ratios will suit or be required for different banks
- /// Recommend a average and median per peer group



The NSFR

- /// The British Bankers Association recommends one of the following calculations for NSFR:

$$\frac{\text{Capital} + \text{Term Funding (>1 year)} + \text{Retail Funding}}{\text{Assets} > 1 \text{ year}} \\ \frac{\text{Unsecured wholesale funding} < 1 \text{ year}}{\text{Total deposits} + \text{debt securities in issue} + \text{capital}}$$

- /// The second calculation is a simpler one that recognises that the problem to address is one of over-reliance on short-term (<1 year) wholesale funding



And...the last set of metrics/limits to consider

/// **Tactical Ratios**

1. Maximum Cumulative Outflow:

The amount of net cash inflow/ outflow from all On-Balance Sheet and Off-Balance Sheet items under normal conditions over the next XX calendar days. Normal conditions mean BAU customer behaviour for withdrawal and repayment of Assets / Liabilities.

2. Wholesale Borrowing Limit:

A limit governing the amount which the Treasury operation can raise in the Wholesale and Inter-bank market, including Intra-group and custodial funds. Typical to cover short term liquidity.

3. Swapped Funds:

Non-domestic funds swapped into local currency

/// **Strategic Ratios**

1. Commitments Guideline:

Amount of Customer Undrawn Committed Facilities (A limit is placed on this)

2. Medium Term Funding Ratio:

Ratio of liabilities with maturity > 1 year to assets with maturity > 1 year
(Similar to NSFR in concept if not calculation)

3. Net inter-bank lender by XX amount Also subject to limit



Internal funds pricing

- /// The rate at which funds are lent by Treasury to the internal business lines is a much more critical issue than was supposed prior to the bank crash
- /// The example of UBS AG, whose structured credit desk was lent funds at Libid by its internal Treasury is an example of how inaccurate funding rates leads to poor business decision making...
- /// ...and was noted by the bank itself after it was bailed out by the Swiss government



The issue

- /// The price at which an individual bank business line raises funding from its Treasury desk is a major parameter in business decision making, driving sales, asset allocation, and product pricing.
- /// It is also a key hurdle rate behind the product approval process and in an individual business line's performance measurement. Just as capital allocation decisions affecting front office business units need to account for the cost of that capital (in terms of return on regulatory and economic capital), so funding decisions exercised by corporate treasurers carry significant implications for sales and trading teams at the trade level.



The issue...

- /// For example, consider the following asset types:
 - /// a 3-month interbank loan;
 - /// a 3-year floating rate corporate loan, fixing quarterly;
 - /// a 3-year floating-rate corporate loan, fixing weekly;
 - /// a 3-year fixed-rate loan;
 - /// a 10-year floating-rate corporate loan fixing monthly;
 - /// a 15-year floating-rate project finance loan fixing quarterly.
- /// We have selected these asset types deliberately, to demonstrate the different liquidity pressures that each places on the Treasury funding desk (listed in increasing amount of funding rollover risk).
- /// Even allowing for different credit risk exposures and capital risk weights, the impact on the liability funding desk is different for each asset.



The issue...

- /// The cost at which funds are lent from central Treasury to the bank's businesses needs to be set at a rate that reflects the true liquidity risk position of each business line. If it is unrealistic, there is a risk that transactions are entered into that produce an unrealistic profit. This profit will reflect the artificial funding gain, rather than the true economic value-added of the business.
- /// UBS structured credit business was able to fund itself at prices better than in the market (which is implicitly inter-bank risk), despite the fact that it was investing in assets of considerably lower liquidity (and credit quality) than inter-bank risk. There was no adjustment for tenor mismatch, to better align term funding to liquidity. A more realistic funding model was viewed as a "constraint on the growth strategy".



A credible framework

/// We recommend the following approach:

- /// a fixed add-on spread over Libor for term loans or assets over a certain maturity, say two years, where the coupon re-fix is frequent (such as weekly or monthly), to compensate for the liquidity mismatch. The spread would be on a sliding scale for longer term assets.

/// For example...

- /// Assets over 12-month maturity will be lent at $L + 8$
- /// Assets over 5-year maturity will be lent at $L + 15$
- /// The same rate will be paid for Liabilities.
- /// For example, little or no Private Bank liability has a maturity exceeding 6 months, one can take the regulatory treatment of the liabilities' stickiness and pay accordingly (so that a PB liability treated as 12 month will receive $L + 8$).

/// However there is more than one way to calculate what the add-on for liquidity stress should be....

- /// Funded v unfunded rate (swap v bonds); risk-free v swap curve; diff between pay fixed on term swap and pay fixed on same term OIS swap

The contingency funding plan

Type of liquidity risk	BAU actions	“Real” Mitigation / insurance
<p>Short-term tactical liquidity risk</p> <p><i>The risk that the Bank’s liquid assets are insufficient to meet its short-term commitments.</i></p>	<ul style="list-style-type: none"> Monitoring and controlling operational liquidity Understanding the business pipeline and predicted funding requirements 	<ul style="list-style-type: none"> Developing a broad range of effective FI / Money Market counterparty relationships to diversify sources of funding Increasing customer deposits to reduce reliance on wholesale funding Maintaining a pool of highly rated, liquid assets for repo / sale purposes
<p>Structural liquidity risk</p> <p><i>The risk that the Bank’s business model (and consequently, its balance sheet) develops in a way that causes difficulty attracting adequate funding on reasonable terms</i></p> <p><i>and/or</i></p> <p><i>The risk that the structure of the balance sheet is unduly exposed to disruption in its funding markets</i></p>	<ul style="list-style-type: none"> Monitoring and influencing strategy development to take account of liquidity Maintaining an appropriate balance between risk and profit in respect of maturity transformation 	<ul style="list-style-type: none"> Reducing FX structural mismatch to reduce reliance on FX-swap markets Active portfolio management (securitisation / syndication / sale) to match asset growth to funding capacity Diversification of funding channels, maturities and investor classes (e.g. MTN programme, CD issuance, different geographies, range of currencies)
<p>Contingency liquidity risk</p> <p><i>The risk that the Bank experiences unexpected and/or acute liquidity shocks</i></p>	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Implementing an effective contingency plan with clearly defined roles and responsibilities, which is tested frequently



Liquidity Stress testing

/// (1) Name specific shock

- /// Unforeseen name-specific shock
- /// Market perceives firm to be potentially insolvent in short term
- /// Long-term impact: severity of multi-notch downgrade in credit rating

/// (2) Market-wide dislocation

- /// Unforeseen short-term market-wide dislocation that gradually evolves into a long-term market wide liquidity stress
- /// Widespread concerns on solvency of financial sector
- /// Uncertainty of value of financial assets
- /// Certain asset classes remain illiquid for a long period

/// (3) Combination of (1) and (2)

- /// A summary report for Board and ExCo...

Report Summary

Status

Outlook

Capital & Liquidity Risk	EUR	Sep-09	Aug-09	Limit
Capital Adequacy Ratio		18.50%	18.26%	15.00%
Total Capital		578M	585M	
Liquidity - 8 days		8.76%	9.77%	3.00%
Liquidity - 1 month		0.49%	4.70%	-3.00%
Loan/Deposit Ratio		79%	81%	

- Treasury Capital ratios all within limits.
- Liquidity levels continue to decrease, however all ratios remained within limits during the month;
- 11.6% of funding comes from CBS, breaching an internal counterparty funding limit of 10%
- Loan/Deposit ration continues to decrease, within the set target of 85%
- Adjusted Maximum Cash Outflow survival horizon is 9days to 1mth.

Capital

Status

Outlook

All Capital ratios within limits; The decrease in Capital from August to September is largely due to FX fluctuations. There remains no offsetting currency capital against GBP and "Other" currency risk-weighted assets.

Capital Ratios

000,000's EUR	Sep-09	Aug-09	Limit
Capital Adequacy ratio	18.50%	18.26%	15.00%
Total Capital	578	585	
Total Capital Utilisation	469	480	
Corporate Banking	389	401	465
Treasury	70	70	80
Private Banking	4	4	5
Other Assets	5	4	58
Free Capital	109	104.4	
Available Lending capacity*	730	696	

*Only half the lending capacity is available for use as bank maintains a 10% buffer on its capital.

Total Utilisation has decreased in September due to FX fluctuations.

000,000's EUR	Sep-09		Aug-09	
	Capital	RWA Capital	Capital	RWA Capital
€EUR	409	195	409	203
\$USD	176	157	176	157
£GBP	0	63	0	65
Other	0	53	0	55
	585	469	585	480

The ccy mix of our capital balance sheet (risk weighted assets) gives us a natural hedge against FX movement in USD.

However, there is currently no offsetting currency capital to allocate against GBP and other currency risk weighted assets.

Stress Tests

The stress test suite will take into account a number of potential events, both internal and external that, although extreme, are considered plausible.

Scenario	RWA	Change in RWA	Capital	Capital change	Ratio	Change in ratio
Unstressed (forecast for Dec 09)	3,427	0	586	0	17%	0.00%
Deterioration FX rates: 5% deterioration in GBPvEUR and USDvEUR FX rates (USD rate =1.50, GBP rate =0.75)	3,505	78	595	9	17%	-0.12%
Asset and P&L growth: Increase RWA by forecast increase in assets and reserves to 31 Decem ber 2008	3,813	386	588	2	15%	-1.68%
€40 m illion bad debt: Reduce EUR RWA and capital by €40m illion	3,387	-40	546	-40	16%	-0.98%
Creation of 40bp provision:	3,413	-14	572	-14	17%	-0.33%
10% decline in securities: Reduce EUR RWA and capital by 10% of the total value of securities (10% of €878 m illion)	3,412	-14	515	-71	15%	-2.02%
Downgrade of portfolio using ratings m igrations during a recession	3,452	25	586	0	17%	-0.12%
Paym ent of dividend: Reduce reserves by 10%	3,427	0	545	-41	16%	-1.20%
Break-even bad debt loss: Reduce EUR RWA and capital by €85m illion	3,342	-85	501	-85	15%	-2.10%

Changes in capital ratio are graded as follows:

- Less than 0.5%
- Between 0.5% and 2%
- More than 2%

Grading applied to the break-even loss:

- Less than €50m
- Between €50m and €100m
- More than €100m

The stress tests set out above are conducted monthly and reflect the stressed capital values against a base capital and risk weighted asset amount as at 31 August 2009

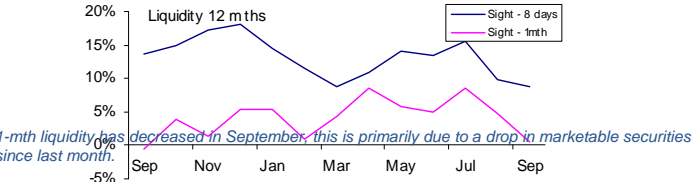
Liquidity

Status Outlook

All regulatory ratios within limits and Leverage ratio continues to be within target level; The Maturity Transformation measure is within the set internal limit; Customer deposits are below the set internal limit of 40% of total funding; There remains an internal counterparty funding limit breach of 11.6%; The adjusted cumulative cashflow survival horizon is 2 weeks.

Liquidity Ratios

London Branch	30-Sep-2009			31-Aug-2009		
	Ratio	Internal limit	FSA limit	Ratio	Internal limit	FSA limit
Overnight	16.52%			14.31%		
Sight - 8 days	8.76%	3.00%	0.00%	9.77%	3.00%	0.00%
Sight - 1 month	0.49%	-3.00%	-5.00%	4.70%	-3.00%	-5.00%



Maturity Transformation

Average asset tenor < 24 times average liability tenor

Report Date	Average Liabilities Tenor (days)	Average Assets Tenor (days)	Maturity Transformation Effect	Limit
30/09/2009	19	262	14	24

Funding Concentration

No source > 25% / €1bn (except customer deposits – min 40%)

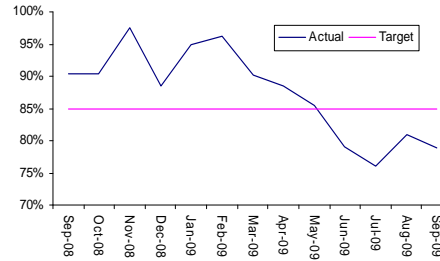
Source	Balance (€000,000's)	% Funding	Within Limit (Y/N)
Customer - Corporate	508	12%	Y
Customer - GDF	139	3%	Y
Customer - Private	1,198	29%	N
Institutional - FIs	792	19%	Y
Inter-Bank	303	7%	Y
Inter-Group (NET Balance)	249	6%	Y
Other	15	0%	Y
Total Liabilities	4,100		

*Customer deposits are currently below the minimum internal limit of 40% of all funding.

*The top 5 non-group funders account for 25.4% of total funding. CBS currently accounts for 11.6% of funding, breaching the internal limit of 10%.

The Arrows highlight issues requiring action
Impact: COST!
Maturity transformation is [A/L]
Short-term funding drives LAB size

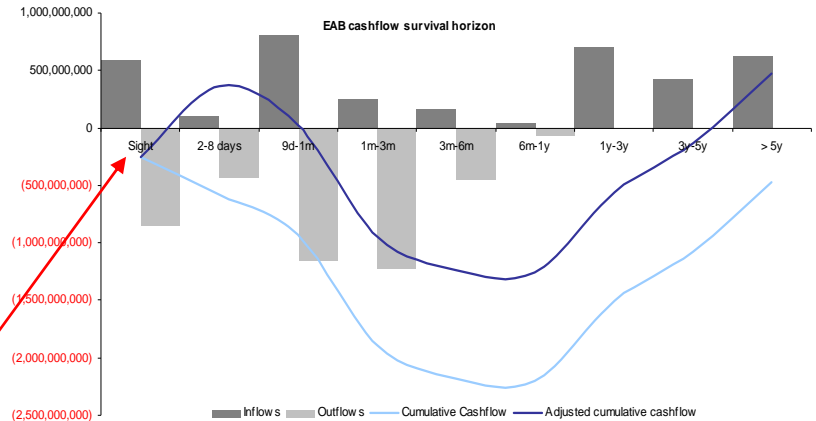
Loan Deposit Ratio



The Loan/Deposit ratio increased to 81% by the end of August, after the restrictions on treasury for placing deposits on the interbank market were slightly relaxed, now allowing a limited amount to be deposited for 3mths and 6mths. The ratio remains within the target level of 85%.

Maximum Cumulative Outflow

Liquidity & Stress Testing Model uses to generate funding cashflow projections, as well as predictive liquidity.



- The "Cumulative cashflow" is based on contractual cash flows and no adjustment has been made for asset/liability behaviour or "stickiness".
- The "Cumulative cashflow" survival horizon remains negative (overnight inflows do not cover outflows).
- "Adjusted cumulative cashflow" is arrived at after factoring in sale/repo of marketable securities (bonds, FRNs, CDs).
- "Overnight" data is unadjusted.
- The "Adjusted cumulative cashflow" survival horizon is 9days -1mth, compared to 2months in August 2009.

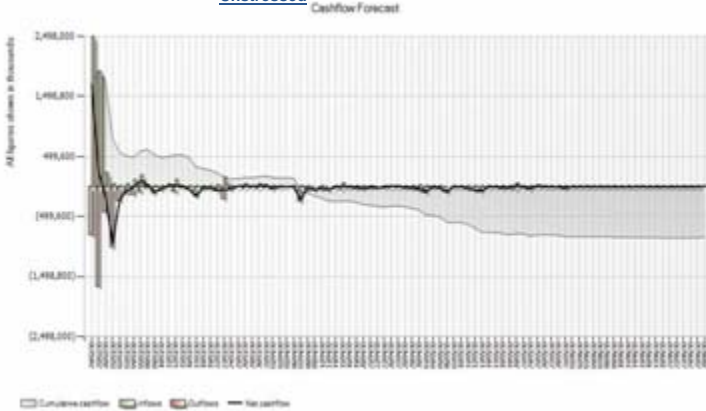
Collation Grid

Assets	26/02/10 - 26/02/10	01/03/10 - 01/03/10	02/03/10 - 02/03/10	03/03/10 - 03/03/10	04/03/10 - 04/03/10	05/03/10 - 05/03/10	08/03/10 - 08/03/10	09/03/10 - 08/04/10	09/04/10 - 07/05/10	10/05/10 - 09/06/10	10/06/10 - 09/07/10	12/07/10 - 11/08/10	12/08/10 - 10/09/10
CASH	0	-241,607,881	-40,054,610	0	0	0	0	0	0	0	0	0	0
MARKETABLE SECURITIES	44,968,549	-137,991,183	-57,139,991	-53,963,305	-58,564,187	-9,179,822	-9,053,677	-8,699,928	-9,564,882	-8,699,928	-8,699,928	-8,699,928	-8,699,928
FRNs	-3,309,632,738	-3,393,689,825	-2,673,744,068	-2,670,030,076	-2,652,419,071	-2,486,484,257	-2,449,789,080	-1,910,019,970	-1,793,858,633	-1,679,325,195	-1,642,531,170	-1,564,709,832	-1,544,267,305
REPO	-1,284,200,226	-1,284,200,226	-1,284,200,226	-1,284,200,226	-1,284,200,226	-1,284,200,226	-1,284,200,226	-1,176,860,413	-1,066,883,169	-1,010,883,169	-956,385,475	-932,385,475	-818,120,475
UNDER INVESTIGATION	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Assets	-4,728,801,560	-5,057,489,085	-4,055,138,895	-4,008,093,608	-3,995,183,484	-3,779,864,305	-3,743,042,983	-3,095,580,310	-2,870,306,684	-2,698,908,291	-2,607,616,573	-2,505,795,234	-2,371,087,708
Liabilities	26/02/10 - 26/02/10	01/03/10 - 01/03/10	02/03/10 - 02/03/10	03/03/10 - 03/03/10	04/03/10 - 04/03/10	05/03/10 - 05/03/10	08/03/10 - 08/03/10	09/03/10 - 08/04/10	09/04/10 - 07/05/10	10/05/10 - 09/06/10	10/06/10 - 09/07/10	12/07/10 - 11/08/10	12/08/10 - 10/09/10
DEPOSIT	4,110,991,383	4,352,599,234	3,950,075,302	3,866,815,947	3,828,122,384	3,723,005,860	3,705,910,202	1,502,417,595	890,054,066	418,752,249	336,623,349	231,403,892	187,872,880
FOREIGN EXCHANGE	45,942,962	135,799,261	57,335,715	54,356,487	60,278,274	9,513,048	9,386,774	9,125,168	10,059,444	9,125,168	9,125,168	9,125,168	9,125,168
LOAN	0	313,297	-700,000	-700,000	-700,000	-700,000	-700,000	-700,000	-500,000	-500,000	-500,000	-500,000	-500,000
UNDER INVESTIGATION	0	0	0	0	0	0	0	0	0	0	0	17	17
Total Liabilities	4,156,934,345	4,488,711,792	4,006,711,017	3,920,472,434	3,887,700,657	3,731,818,908	3,714,596,976	1,510,842,763	899,613,510	427,377,418	345,248,534	240,029,078	196,498,065
Cashflow	0	3,089,921	520,349,416	-39,193,296	-19,861,653	59,437,430	19,599,390	-1,556,291,540	-385,955,627	-300,837,700	9,162,835	-3,398,118	91,176,514
Cumulative Cashflow	0	3,089,921	523,439,337	484,246,041	464,384,388	523,821,818	543,421,208	-1,012,870,332	-1,398,825,959	-1,699,663,659	-1,690,500,824	-1,693,898,942	-1,602,722,428

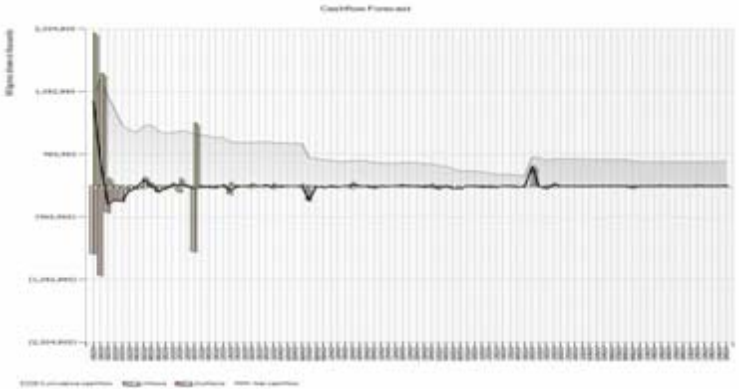
Cumulative Cashflow Forecast and Stress Tests

The Cumulative Cashflow survival horizon is 42 days. Once Observed Behavioural Forecasting (OBF) is applied along with the stresses set out by the FSA, the Forecasted Cumulative Cashflow survival horizon is beyond that of the 6 months being analysed. Once relevant haircuts are applied to the Marketable Assets as part of the FSA stress testing, their value reduces by €150mm to €1.13bn

Cumulative Cashflow Forecast - Unstressed



Cumulative Cashflow Forecast - Stresses & OBF applied



- Graphs show daily cash flow movements over a 6 month period from 23rd Feb 2010
- The Cashflow is arrived at after factoring in sale/repo of marketable securities (bonds, FRNs, CDs). "Overnight" data is unadjusted.
- The Cumulative cashflow is based on contractual cash flows and no adjustment has been made for asset/liability behaviour or "stickiness".
- Data feeding graph uses same baseline data as seen in Treasury Reporting. Additional deals have been added to this data for FX swap positions.

The "cumulative cashflow" survival horizon is 42 days.	Marketable Securities	€1,279,200,226
	Haircut Value	€150,116,423
	Marketable Securities stressed	€1,129,083,803

- Shows the Post-FSA stressed Cumulative Cashflow Forecast taking into account the immediate sale/repo of Marketable securities
- The following FSA stresses have been applied: Wholesale Funding, Retail Liquidity, Intraday liquidity - 3 & 5 day stresses, Cross Currency Liquidity, Intra-Group Liquidity, Off Balance Sheet Liquidity, Marketable Assets, Non-Marketable Assets, Funding Concentration.
- OBF (stickiness) applied: Non Liabilities (100% every 3 days), Current Accounts (-5.66% every 36 days), Retail Time deposits (-0.41% every 344 days), Capital (100% every 3 days), Cash & Equivalents (100% every 3 days), Fiscal Liabilities (100% every 3 days), Repo Liabilities (currently no repos), Other time deposits (-0.03% every 47 days), FX (100% every 30 days)
- OBF not applied: Corp Deposits, Govt time deposits, Intragroup time deposits, Interbank time deposits, Other Liabilities
- Forecasted Cumulative Cashflow survival horizon is beyond that of the 6 months being analysed for this report once OBF and the FSA stresses have been applied.



Stress testing...FSA-defined “risk drivers”

- /// Wholesale funding risk
- /// Intra-group funding risk
- /// Intra-day liquidity risk
- /// Cross-currency liquidity risk
- /// Retail funding risk
- /// Size and quality of liquidity buffer
- /// Wholesale (unsecured) lending and retail loans
- /// Off-balance sheet liquidity risk
- /// Continuation of business
- /// Diversification of funding sources



New reporting requirements...implications

- /// Data / IT architecture challenges
- /// Frequency of reporting
- /// Solo AND (for Group companies) consolidated reporting requirements
- /// Shorter deadlines for submission (T+1)
- /// Multi-currency reporting
- /// Complete analysis of own and 3rd-party collateral
- /// OBS items (inc undrawn and expected drawdowns)
- /// Bank must address existing infrastructure and ensure it is adequate...
- /// **The key debate:** placing all of the bank's product profile and on and off balance sheet items on one system, to facilitate adequate reporting and stress testing



Summary

- /// Small banks face increased cost of doing business as a result of need to meet new FSA regime requirements
- /// Priority items include minimising the size of the LAB (through minimising short-term wholesale funding) and producing the CFP
- /// And enhancing the IT suite to facilitate the increased stress testing requirements
- /// The other priority is qualitative: Board and Shareholder education of what is required, understanding the risk and the impact on the RoE



Bibliography

- /// Choudhry, M., *The Money Markets Handbook*, John Wiley & Sons 2004
- /// Choudhry, M., *Analysing and Interpreting the Yield Curve*, John Wiley & Sons 2004
- /// Choudhry, M., *Bank Asset and Liability Management*, John Wiley & Sons 2007



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