

Basel III liquidity risk

The implications

November 2017



Several key regulations such as liquidity risk are being given final shape and their implementation periods will soon be specified even as banks and financial institutions struggle to keep up with the changes.

CRISIL GR&A's analysis shows how the traditional liquidity risk appetite is likely to change, and bring it in line with the demanding requirements of the new regulations

Analytical contacts

Mudit Goel

Director, Risk & Analytics
mudit.goel@crisil.com

Ravi Bhushan

Associate Director, Risk & Analytics
ravi.bhushan@crisil.com

Chirantan Mukherji

Associate Director, Risk & Analytics
chirantan.mukherji@crisil.com

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Executive summary

The need to strengthen the Basel II framework had become apparent even before the collapse of Lehman Brothers in September 2008. The global financial crisis saw the US and European banking sectors taking on too much leverage without adequate liquidity buffers. This got amplified because of poor governance, inadequate risk management and inappropriate incentive structures, leading to mispricing of credit and liquidity risks, and excessive credit growth. Reflecting on these factors, the Basel Committee had issued a guidance paper, *'Principles for sound liquidity risk management and supervision'*, the month Lehman went kaput.

The paper flagged the following four areas for strengthening liquidity risk management and governance:

Importance of quantifying liquidity risk tolerance

1. Design and use of extreme stress-test scenarios
2. Need for a robust and operational contingency plan, and
3. Management of intra-day liquidity risk and collateral.

However, the emerging consensus was that a more comprehensive global regulatory framework was needed for banks to make them very resilient and banking systems needed to comply with the four aforesaid areas.

In December 2010, the Basel Committee of Banking Supervision (BCBS) issued the 'Basel III: International framework for liquidity risk measurement, standards and monitoring'. Its objective was to improve the global banking sector's ability to absorb shocks arising from financial and economic stress and reduce the risk of spill-overs into the real economy.

The policy earmarked minimum regulatory standard to measure and monitor liquidity risk through two new ratios — the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR). Additionally, metrics to be used as consistent monitoring tools were also introduced.

Banks need to fully comply with LCR and NSFR rules by January 1, 2019, according to the Capital Requirements Directive & Capital Requirements Regulation (CRD IV & CRR) rules. But these rules are likely to undergo some revisions due to a proposal by European Union (EU), so implementation horizon could go being beyond 2019.

Given the robust governance and disclosure requirements, compliance is a challenge for financial institutions. This needs to be mitigated through integrated solutions and proactive risk management – and not by reacting to liquidity risk-induced events.

Introduction

Liquidity = availability of liquid assets

Liquidity risk = the probability of loss arising from a situation where

- There will not be enough cash and/or equivalents to meet the needs of depositors and borrowers, and/or,
- Sale of illiquid assets will yield less than their face value, and/or,
- Illiquid assets will not be sold within the desired time due to lack of buyers.

LCR was designed to kick in from January 1, 2015, and required banks to maintain a buffer of adequate high-quality liquid assets to deal with net cash outflows (for 30 days) encountered in acute short-term stress scenarios specified by regulators. To ensure that banks can implement without disrupting their financing activities, the minimum LCR requirement has been staggered at 60% from 2015, rising in equal annual steps of 10 percentage points to 100% on January 1, 2019.

On the other hand, NSFR, which is expected to take effect as the minimum liquidity standard by January 1, 2019 (but the date is likely to be revised due to changes proposed in CRD V/ CRRII rules), intends to address maturity mismatches in the balance sheet.

The Basel III rules for liquidity and funding are having an impact on several areas of the banking business. As a consequence, it is important to identify the key areas where they have the biggest impact and define strategies, processes, and product treatments to tackle the upcoming challenges.

This paper is an overview of the strategies that global banks are discussing and implementing, which focus on funds transfer pricing (FTP), active steering of LCR and NSFR, deposit analysis, and firm-wide governance.

CRISIL GR&A, one of the pioneers in Risk & Analytics with extensive experience and expertise in liquidity risk management, provides an in-depth analysis of how the regulatory environment has shaped funding practices at major banks. We also furnish an insight on how these imminent regulations can significantly alter the liquidity landscape in the near future.

Understanding liquidity risk

LCR

Stock of high-quality liquid asset (HQLA)		
		→ 100%
	Total net cash outflows over the next 30 calendar days	

NSFR

Available amount of stable funding		
		→ 100%
	Required amount of stable funding	

Additional liquidity monitoring metrics



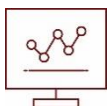
Contractual maturity mismatch

As a baseline to gain an understanding of the basic, least complex aspects of a bank's liquidity needs, banks should frequently conduct a contractual maturity mismatch assessment



Available unencumbered assets

Measures the amount of unencumbered assets a bank has which could potentially be used as collateral for secured funding either in the market or at standing central bank facilities



Market-related monitoring tools

Contains information of the market-wide impacts, information of the financial sub-sectors/sectors and bank specific information (such as equity prices, CDS spreads, etc.)



Concentration of Funding

Involves analyzing concentrations of wholesale funding provided by specific counterparties, products, issuers and currencies

Key challenges and associated mitigations

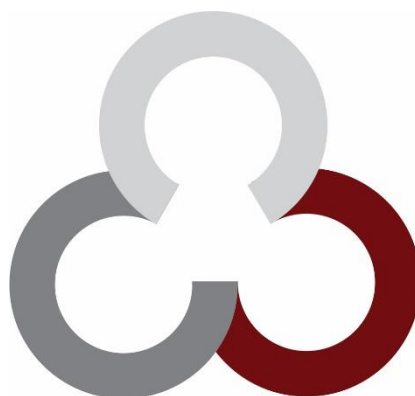
The liquidity requirements set by the Basel Committee have spawned challenges as complex as that for capital requirements. Several banks perceive these as the proverbial tip of the iceberg, necessitating a movement from short-term wholesale funding to a longer-term funding strategy.

Some of the key challenges are:

- 1. Expensive restructuring of assets and liabilities:** In the event of a liquidity crisis, short-term liability maturities cannot be adequately matched with longer-tenured assets (due to the traditional structure to profit from net interest margin). Hence, it is imperative that banks reduce the asset tenure and increase the liability maturity. Liquidity management involves finding the right optimization between liquidity risk and profitability. The overall funding profile of banks should be managed by transfer pricing matched maturity funds.

As banks compete more aggressively for retail deposits—because of the ‘value’ placed on such deposits to satisfy both the LCR and the NSFR – the overall result would be to make retail deposits both more expensive and less ‘stable’

Many banks will find it costly to adjust their balance sheets by holding relatively low-yield high-quality assets, raising more expensive stable retail deposits; thereby reducing interest margin



Increased demand for > one-year maturity wholesale funding may also have the effect of making such funding more expensive

Mitigations and alternatives for banks

- Extending the maturity of liabilities where possible and reducing the tenure of assets
- Exiting from expensive business lines because cost of funding is too high
- Raising new capital — bond financing, sale of long-term assets, and entering into collateral swaps
- Issuing medium- to long-term wholesale funding
- Investing in innovative products such as liquidity credit facilities, which are products with national banks where liquidity can be accessed at short notice in exchange of a fee
- Keeping a close watch on potential HQLAs such as equities, gold or other trading book liquid assets that may qualify as per eligibility

2. Trapped liquidity: Basel III liquidity requirements are subject to transposition into national law by regulators. In the absence of a harmonized directive, recognition and treatment of liquid assets may differ between jurisdictions. This leads to liquidity being trapped, thereby impacting global banks.

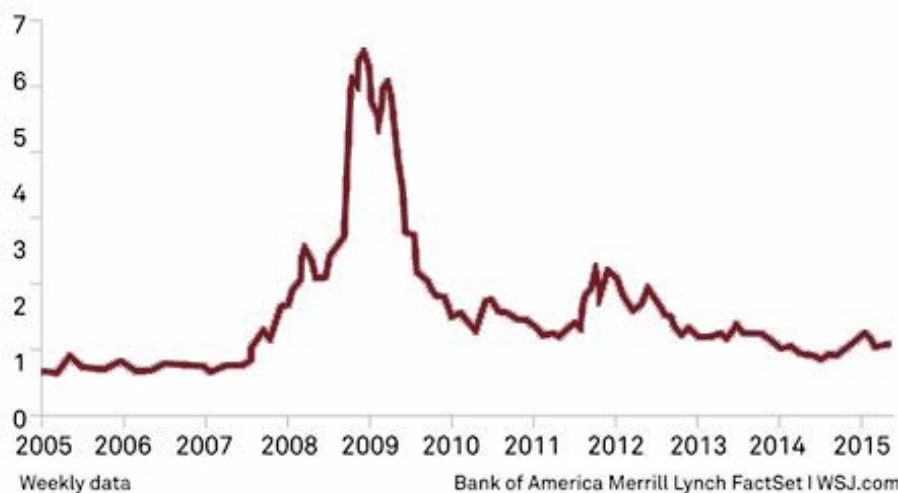
Global banks will find it difficult to maintain the liquidity requirements at a group level in the absence of a harmonized treatment/recognition of liquid assets

National supervisors will impose restrictions on transfer of liquid assets from one region to another creating trapped liquidity locally

Moves by many national supervisors to 'ring fence' branches and subsidiaries of foreign banks may force bank groups to hold more liquidity across the group than would be required under a purely group-wide calculation of the LCR and NSFR

Illiquidity trap

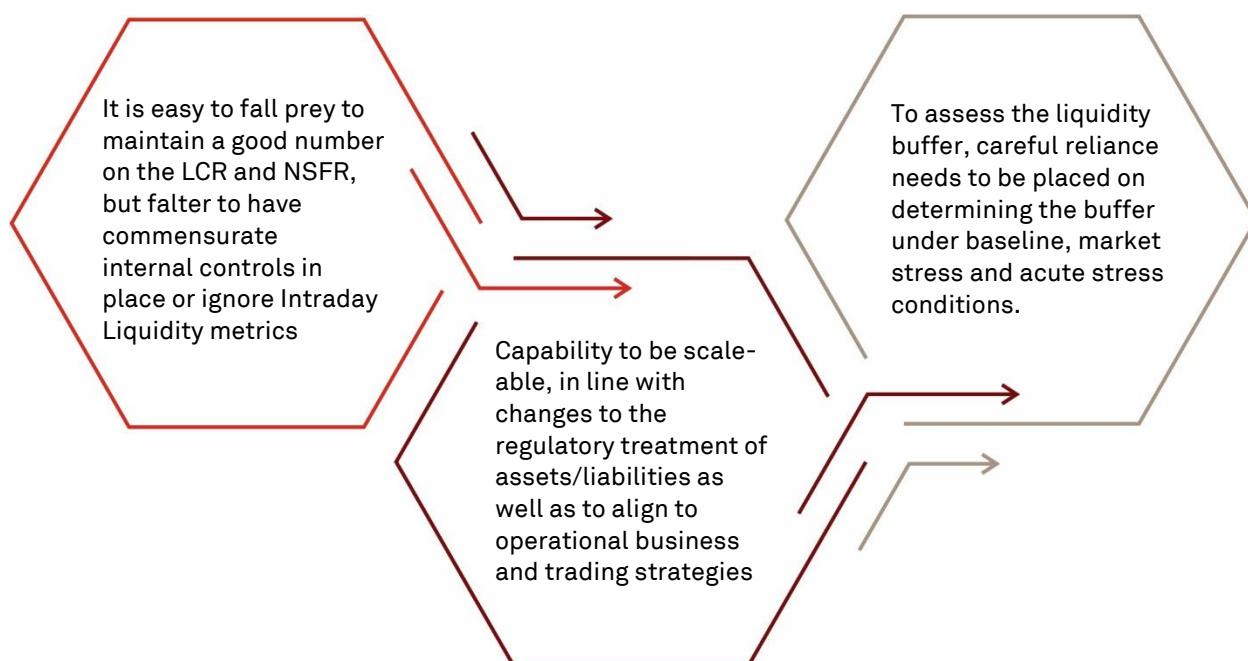
US investment grade corporate bond yield spread over treasurys, percentage points



Mitigations and alternatives for banks

- Be cognizant of differences in asset treatment across regions, and even across the same asset category and across LCR and NSFR. For example, covered bonds may be included as liquid assets if they satisfy certain conditions under the EU proposal. The US, however, does not recognize covered bonds as liquid assets
- Monitor at a firm-wide level, the liquidity pool and performance levels by business and entity and across significant currencies
- Incorporate periodic review of assumptions used in liquidity and cash flow projections
- Due consideration for internal adequacy needs (intra-day liquidity)

3. Predictive models and optimization: Being appreciative of the external regulators' need, liquidity management board at banks need a unified predictive model that also estimates internal, firm-wide liquidity risk under baseline, market and acute stress. Internal considerations may well be more stringent than external measures.



Mitigations and alternatives for banks

- Establish a forward-looking, scalable system capable of forecasting liquidity pool according to regulatory norms and as per own assessment of liquidity risk
- Project cash flows over various time horizons: a rolling daily and seven-day forecast to ensure adequate funding of daily operations. Another cash flow projection is needed for twelve months or even longer visibility
- Ensure that stress testing and scenario analysis are representative of regulatory prescribed scenarios and commensurate with own assessment of liquidity shocks
- Use of robust business intelligence (BI) tools to slice and dice data for meaningful comparisons
- Liquidity stress events can be both short- and long-term in nature and can be created by internal or external situations
- One unified system that caters to forecasting of liquidity buffer across external ratios

4. Collateral optimization and contingency plan: At present, trading desks handle collaterals, but it will be more prudent if the funding valuation adjustment (FVA) desk centrally identifies collateral needs (according to the business lines and usage). After identification, the FVA desk should transfer the collaterals daily to the trading desk on a need-basis. This centralized practice would result in efficient use of collaterals.

Contingency funding plans would manage short-term and long-term liquidity needs. The plan for the most significant stress events and scenarios will be reviewed periodically.



Banks will need to adequately establish stringer requirements towards credible and effective recovery plans, including approaches, approved by the management board to restore liquidity under stressed conditions



Purview of the FVA mandate above & beyond usual derivative funding risk seems to be evolving to cover dynamic aspects of funding, with the most widespread inclusion being contingent funding for downgrade events



Collaterals may need to be identified centrally, and basis the need, be allocated to trading desks on a daily basis; collateral optimization

Mitigations and alternatives for banks

- Collateral optimization and the ability of the FVA desk to assume a centrally robust mechanism to identify and allocate collaterals consistently
- Consider contingent exposures such as undrawn credit lines:

To maintain a contingency funding plan that identifies potential sources of liquidity strain and alternative sources of funding.

Include the board in (refer to sample traffic light given in CRISIL's Engagement, to monitor liquidity by risk managers):

- Establishing the company's liquidity risk tolerance at least once annually,
- Approving the liquidity risk management strategies, and
- Overseeing the liquidity risk management policies, procedures and processes

5. Data and operational challenges: There is a significant need for data at multiple risk aggregation levels including transactional, product, business line, and legal entity and at a firm-wide level. Often, required data is not available from the identified golden source or it is fraught with quality issues. Banks need to build transactional database and liquidity dashboards to better monitor positions and support the need for historical data and analytics.



- Lack of integration between business, finance and risk management frameworks as against regulatory standards
- Integration of cash flow information of on and off-balance sheet positions



- Availability of data at the required level of granularity
- Existing data quality issues which must be addressed in the integration layer, rather than at source



- Frequent changes in the regulatory guidelines necessitating technology change
- With the pace of change, not keeping adequate audit trail or not able to evidence all auditable history when required
- Interpretation and reliance on subject matter expertise leading to difference of opinion in asset treatment

Mitigations and alternatives for banks

- Build one system integrating data across business, finance and risk. Ensure reconciliation performed is in agreement between data from source system and ledger
- Focus on strategic solutions integrating liquidity risk with other risks such as market, credit, operational and economic risk capital
- Emphasize on scalable models that are regularly revisited for scenarios; ensure back testing is commensurate with size and complexity of business
- Ensure adequate documentation of project artefacts and make E2E traceability mandatory
- Operate within liquidity risk tolerance levels

As banks wake up to the overarching and all-enveloping liquidity needs at the firm level -- both internal and external -- it is imperative that careful reliance is enforced to meet specified corporate governance requirements around liquidity risk management. The board must be included in: 1) establishing the company's liquidity risk tolerance at least once annually 2) approving the liquidity risk management strategies, and 3) overseeing the liquidity risk management policies, procedures and processes.

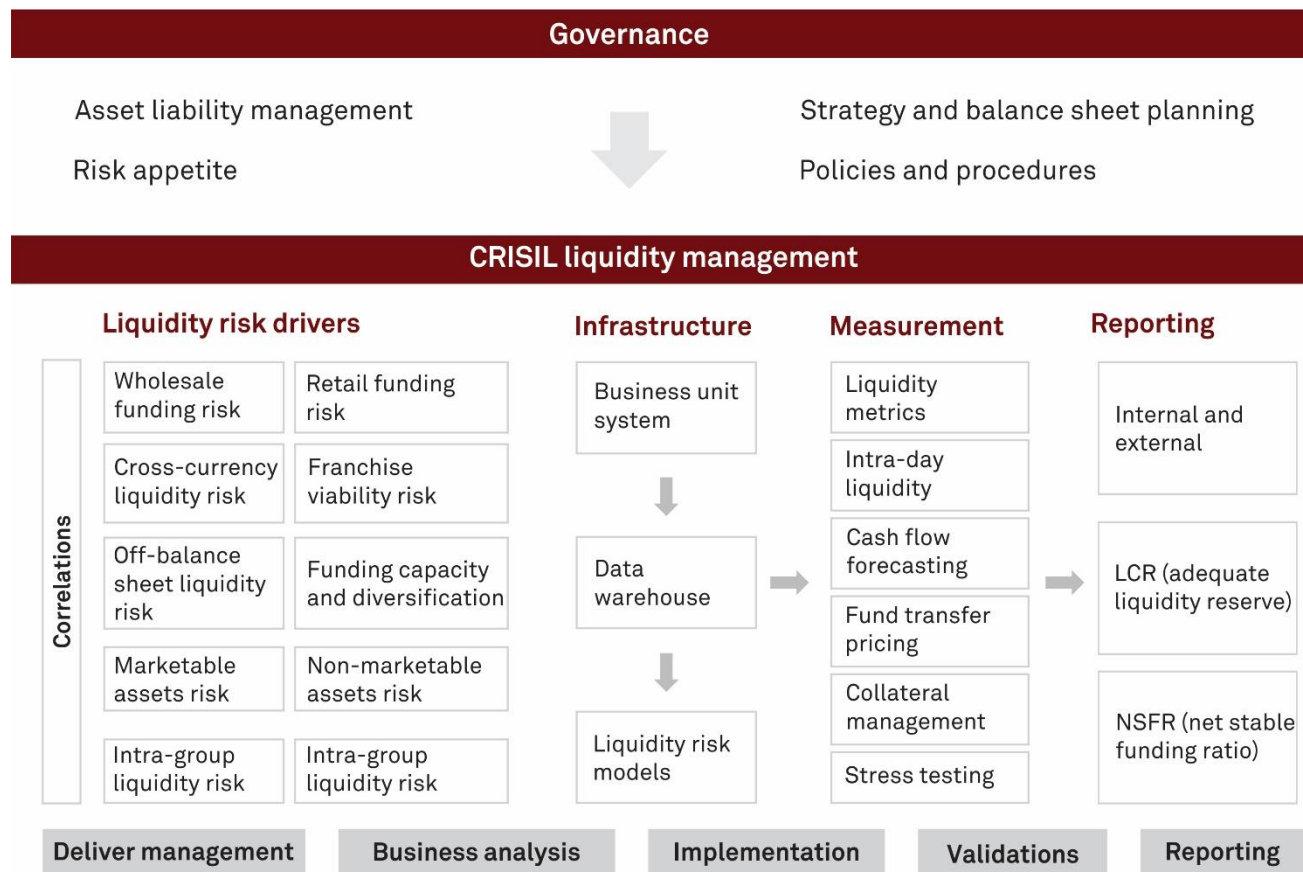
Conforming to a requirement is a transformational journey and to succeed in that, the optimal liquidity strategy would depend on market-specific factors such as maturity of inter-bank and debt markets and bank-specific factors such as product portfolio and liability composition. A well-planned journey needs to take into account competitors' responses, too. In order to synergistically cross over, banks would need to share best practices with each other to ensure a systemic collapse is avoided. A vigilant and proactive management board is the key to liquidity safety.

CRISIL's engagement

- **Gap analysis:** Understand the clients' business needs and evolving liquidity landscape and compare that with the regulatory + internal treasury goal to elucidate gaps. With the help of professionals who have industry experience in liquidity reporting space, our analysts provide a comprehensive analysis of liquidity requirements.
- **Business analysis/Project management:** Our experienced business analysts and project managers help to deliver a solution to address the organizations' liquidity risk implementation.
- **Model creation and validation:** Our team of experts suggests strategic models which adequately identify, assess and monitor the firm-wide liquidity needs. Our reach extends to building complex business rules validation and integrating the same in an end-to-end system architecture.
- **Stress testing and scenario framework:** Designing and testing of stress scenarios appropriate to respective business models and regulatory requirements.
- **Experience in BI tools and third party tools:** Our change catalysts possess robust hands-on experience in working with BI tools such as Lumira, Tableau and consolidation tools such as AxiomSL.
- **Liquidity risk reporting and documentation:** Our team of expert BAs provide solutions for reporting (both management reporting and external regulatory reporting). Our team streamlines the documentation of re-usable artefacts which ensures knowledge retention and requirement audit trail on a consistent basis
- An example of the LCR and NSFR limits for a risk manager's actions:

LCR/NSFR	Limit	Risk manager action
>105%	Green	No change required
100-105%	Amber	Prepare a business plan to demonstrate a return to more stable levels over six months; also, monitor and report the actual levels every quarter
<100%	Red	An immediate action should be taken to return to the amber zone within three months and the green zone within nine months. A report should be communicated every month until the amber zone limits are achieved

CRISIL liquidity risk framework



Annexure

Definition of high-quality liquid assets (HQLAs): US LCR Proposal versus EBA HQLA Report

The below table provides a comparison of: (1) the definition of HQLAs in the US LCR proposal; and (2) the assets found to be of 'extremely high liquidity and credit quality (extremely HQLAs)' and of 'high liquidity and credit quality (HQLAs)' in the European Banking Authority's (EBA) analysis and report on the uniform definitions of 'extremely HQLAs' and HQLAs.

Asset class	EBA HQLA Report (<i>December 20, 2013</i>)	US LCR Proposal (<i>October 24, 2013</i>)
Central bank reserves	The EBA's analysis does not assess the liquidity of central bank reserves and holdings of notes and coins, which are assumed to be liquid assets by definition	<p>Level 1 HQLAs:</p> <ul style="list-style-type: none"> Excess reserves held at the Federal Reserve, subject to certain exceptions. Balances held at foreign central banks that are <u>not</u> subject to restrictions on the banking organization's ability to use the reserves.
Sovereign bonds	Extremely HQLAs: The EBA recommends that <u>all</u> bonds issued or guaranteed by the European Economic Area (EEA) sovereigns and EEA central banks in the domestic currency be considered as extremely HQLAs.	<p>Level 1 HQLAs</p> <ul style="list-style-type: none"> Securities issued or unconditionally guaranteed by the US Treasury. Securities issued or unconditionally guaranteed by any other US government agency, whose obligations are fully and explicitly guaranteed by the full faith and credit of the US government. <p>Level 2A HQLAs</p> <ul style="list-style-type: none"> Securities issued or unconditionally guaranteed by a sovereign entity <u>if</u>, among other requirements, the exposure to the sovereign is assigned a 20% risk weight under the US Basel III standardized approach
Supranational institution securities	Extremely HQLAs: The EBA recommends that bonds issued or guaranteed by supranational institutions (the Bank for International Settlements, the International Monetary Fund, the European Commission, multilateral development banks, the European Financial Stability Facility, and the European Stability Mechanism) be considered extremely HQLAs.	<p>Level 1 HQLAs:</p> <ul style="list-style-type: none"> Securities issued or unconditionally guaranteed by the Bank for International Settlements, the International Monetary Fund, the European Central Bank and European Community or certain specified multilateral development banks

Asset class	EBA HQLA Report (December 20, 2013)	US LCR Proposal (October 24, 2013)
US GSE securities	<u>Not</u> considered	<p>Level 2A HQLAs:</p> <ul style="list-style-type: none"> Securities issued or guaranteed by a US government-sponsored entity (GSE) – <i>i.e.</i>, Fannie Mae, Freddie Mac, Federal Home Loan Banks and the Farm Credit System – that is liquid and readily marketable; of investment grade under the Office of the Comptroller of the Currency (OCC) non-credit ratings based standard; and senior to preferred stock.
Corporate debt securities	<p>HQLAs: Corporate bonds rated ECAI 4 or better, with a minimum issue size of EUR 250 million (or the local currency equivalent) and a maximum time to maturity of 10 years.</p> <ul style="list-style-type: none"> Mapping of ECAI ratings: The below table shows how the external-credit ratings are mapped to one of the six External Credit Assessment Institution (ECAIs) ratings. 	<p>Level 2B HQLA:</p> <ul style="list-style-type: none"> Publicly traded corporate debt security that is: liquid and readily marketable; of investment grade under the OCC’s non-credit ratings based standard; issued by an entity whose obligations have a proven record as a reliable source of liquidity in the repurchase or sales markets during stressed market conditions and not issued by a financial entity.
Corporate equity securities	<p>Based on the empirical and principles-based analysis in its report, the EBA found insufficient evidence of market liquidity to propose equities as HQLAs.</p> <ul style="list-style-type: none"> <u>However</u>, on the basis of <u>qualitative</u> factors and supervisory judgment, the EBA recommends considering common equity as an HQLA in accordance with the eligibility criteria in the Basel Committee’s revised LCR framework. The EBA observed that: “Equities show high volume-based metrics and are found to be very active as a collateral in terms of repo-ability” 	<p>Level 2B HQLA:</p> <ul style="list-style-type: none"> Publicly traded common equity that is, among other requirements, liquid and readily marketable; included in the S&P 500 or an equivalent index; of investment grade under the OCC’s non-credit ratings based standard; issued by an entity whose obligations have a proven record as a reliable source of liquidity in the repurchase or sales markets during stressed market conditions and not issued by a financial entity.
Securities issued by financial institutions (other than covered bonds)	<p>Based on the empirical and principles-based analysis in its report, the EBA found insufficient evidence of market liquidity to propose securities issued by financial institutions (other than securities guaranteed by sovereigns and covered bonds) as HQLAs.</p>	<ul style="list-style-type: none"> Generally do not qualify as HQLAs

Asset class	EBA HQLA Report (<i>December 20, 2013</i>)	US LCR Proposal (<i>October 24, 2013</i>)
Covered bonds	<p>EBA expressed doubts about including covered bonds as <u>extremely</u> HQLAs</p> <ul style="list-style-type: none"> The EBA observed that: “The analysis shows that some covered bonds display an excellent liquidity based on the available data, which reflects the European covered bond market. Nevertheless, two-thirds of the observations come from markets that did not experience a real-estate crisis. There are <u>doubts</u> as to whether the findings of the current analysis are sufficient to justify a deviation from the international standards and the inclusion of some covered bonds in the category of <u>extremely</u> HQLAs, the characteristic of which is to allow unlimited recourse to such instruments to cover for liquidity requirements.” (emphasis added) HQLAs: Covered bonds rated ECAI 1 of a minimum issue size of EUR 250 million (or the local currency equivalent). 	<ul style="list-style-type: none"> Do <u>not</u> qualify as HQLAs
Residential mortgage-backed securities (RMBS)	<p>HQLAs: RMBS rated ECAI 1, with a minimum issue size of EUR 100 million (or the local currency equivalent), a maximum time to maturity of five years and subject to the following additional requirements:</p> <ul style="list-style-type: none"> All assets backing an RMBS must be first-lien residential mortgages. Only senior tranches can be included. The time to maturity of the security shall be calculated using either the first call date of the RMBS or the lowest of either the pricing prepayment assumption as defined in the offering circular or 20% conditional prepayment rate (CPR). 	<ul style="list-style-type: none"> Do <u>not</u> qualify as HQLAs
Securities issued by state and local governments	<p>HQLAs: Bonds issued by the local government institutions in EEA currencies, rated ECAI 2 or above, with a minimum issue size of EUR 250 million (or the local currency equivalent) and a maximum time to maturity of 10 years.</p>	<ul style="list-style-type: none"> Do <u>not</u> qualify as HQLAs
Collective investment undertakings (CIUs)	<p>Pursuant to Article 416(6) of the CRD IV Regulation, shares in CIUs, subject to certain requirements and limitations, may be treated as liquid assets, provided that a CIU (apart from derivatives to mitigate interest rate or credit or currency risk) only invests in liquid assets eligible for the LCR.</p>	<ul style="list-style-type: none"> Securities issued by an investment company or a non-regulated fund generally do <u>not</u> qualify as HQLAs.

References and acknowledgements

European Banking Authority

- Consultation Paper on Draft Implementing Technical Standards on Additional Liquidity Monitoring Metrics under Article 403(2) of the draft Capital Requirements Regulation (CRR).
- Consultation paper: On Asset Encumbrance Reporting under article 95a of the draft Capital Requirements Regulation (CRR), European Banking Authority, March 2013
- Report on Risks and Vulnerabilities of the European Banking Sector, European Banking Authority, July 2012
- EBA FINAL draft implementing technical standards on additional liquidity monitoring metrics under Article 415(3)(b) of Regulation (EU) No 575/2013, European Banking Authority, December 2013

Basel Committee on Banking Supervision

- Principles for Sound Liquidity Risk Management and Supervision – final document (September 2008 – BCBS 144)
- Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools (January 2013 – BCBS 238)
- Liquidity coverage ratio disclosure standards – Consultative document (July 2013 – BCBS 259)

CRD IV Amendment Directive – Directive of the European Parliament and of the council amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures

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