ESMA Liquidity Stress Testing

Bloomberg

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ESMA's new Liquidity Stress Testing (LST) guidelines take effect on 30 September 2020, and will apply to all Alternative Investment Funds (AIFs) and Undertakings for the Collective Investment in Transferable Securities (UCITS) along with Money Market Funds.

The guidelines enhance existing standards, promote consistency and increase frequency of current LST practices. Whilst not prescriptive, the guidelines specify fund managers need a "strong understanding of their fund's liquidity profile" in both hypothetical and historical stress scenarios.

Bloomberg's award-winning Liquidity Assessment (LQA) solution enables quantitative evaluation of execution measures for in-scope firms. Examples include liquidation cost or liquidation horizon for a fund's holdings under custom stress scenarios. This provides the foundation for a comprehensive Liquidity Risk Management (LRM) framework supporting ESMA LST guidelines.

Guideline Overview

The 16 principal-based guidelines promote awareness of liquidity risk incorporating stress testing to enhance liquidity risk management.

From an implementation perspective, the guidelines fall into three categories: Governance Framework, Scenario Definition, and Stress Test Results.

ESMA Liquidity Stress Testing Guidelines

1. Governance Framework	2. Client Input/Customization*	3. Stress Test Output**
#1. LST Model Design	#5. Frequency	#6. Use of LST Outcomes
#2. Understanding Liquidity Risk	#7. Fund Specific LST	#9. Data Availability
#3. Governance Principles	#8. Stress Scenarios	#10. Product Development
#4. LST Policy	#12. Liability Based LST	#11. Asset Based LST
	#13. LST on Other Liabilities	#14. Investments in Less Liquid Assets
		#15. Combined Asset & Liability LST
		#16. Aggregating LST Across Funds

*Client customizable input to Bloomberg's Liquidity Solution
**Component of Bloomberg's Liquidity Solution

Figure 1 – Overview of ESMA guidelines with summary classification information.

Governance Framework

As liquidity risk measurement and management evolves, legacy frameworks often do not have sufficient flexibility to build an appropriate governance framework. Bloomberg's fully customizable LQA solution enables a fund-specific framework providing the analytics to support custom liquidity stress scenarios, metrics, and reporting.

LQA can assess the impact of multiple fund-specific scenarios based on the key liquidity risk factors applicable to fund holdings, and seamlessly incorporate the results into Enterprise risk-management workflows.Front office workflow is supported through a Programmatic API, Excel Add-In, and/or the Bloomberg Terminal.

Scenario Definition

Defining appropriate stress scenarios can present a major challenge due to a lack of observable data-points to calibrate such events. LQA provides a straightforward approach to scenario definition based on four market parameters:

• Redemption Amount
• Daily Available Volume
• Price Volatility
• Bid-Ask Spread

Firms can calibrate multiple scenarios using data from historical events, and/or hypothetical (forward looking) events to simulate a variety of stresses, including those with low probability but high impact. Stress factors can be defined either as a multiplier of current market conditions or as absolute values. Applied at the portfolio-level, asset class-level or even security-level this provides customisation options to complement fund investment style. A parameter-based approach enhances explainability to senior management.

Whilst LQA does not have oversight of a fund's liabilities or investor profile, firms can evaluate the liquidity sensitivity of a fund under any foreseeable redemption scenario.

		Normal	Mild Scenario	Moderate Scenario	Severe Scenario	Extreme Scenario
Portfolio	Redemption %	1%	3%	5%	7%	10%
	Confidence Level	50%	50%	50%	50%	50%
Fixed Income	Daily Available Volume Multiplier	1	0.9	0.75	0.5	0.25
	Price Volatility Multiplier	1	1.25	1.5	1.75	3
	Bid Ask Spread Multiplier	1	1.1	1.25	1.5	2
Equity	Daily Available Volume Multiplier	1	1	0.9	0.9	0.75
	Price Volatility Multiplier	1	1.5	2	3	3.5
	Bid Ask Spread Multiplier	1	1.25	1.50	2	2.5

Figure 2 – Sample redemption scenario definitions with asset class-specific stresses.

Stress Test Results

Generation of fund specific actionable liquidity metrics is possible following the application of discrete scenarios. LQA leverages a vast amount of global transactions data to model the time it takes to liquidate each position conditional upon liquidation cost preferences (i.e. market impact). Aggregating liquidity metrics facilitates measurement of the cumulative liquidation horizon for each scenario.
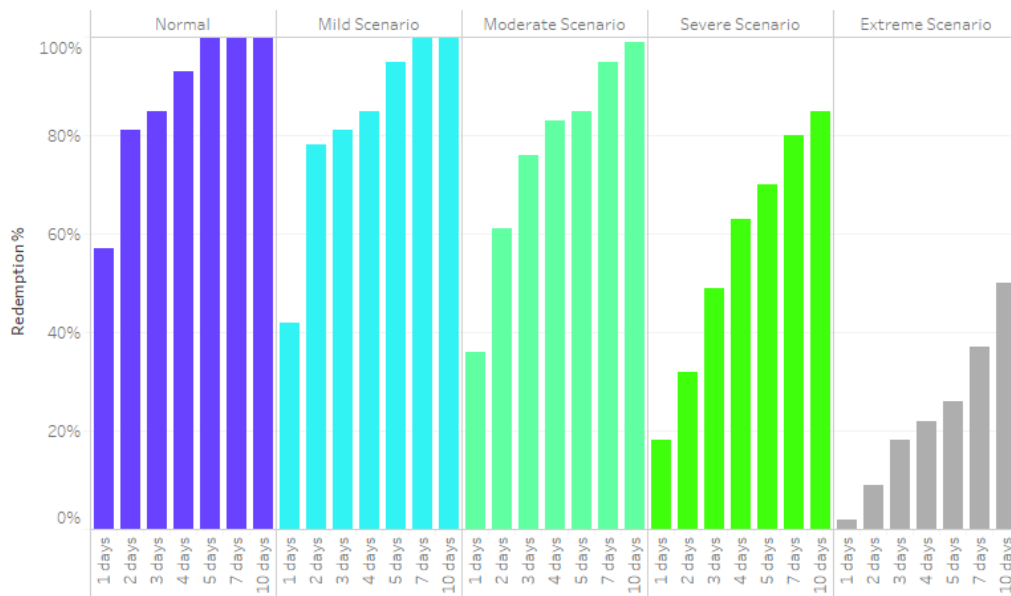

Figure 3 – Cumulative liquidation horizon under various stress scenarios.

Guideline 15 requires evaluation of stress scenarios applied to both the Asset and Liability sides of the Balance Sheet. The example below illustrates portfolio level liquidation horizons for a variety of stress scenarios under different redemption (liability) shocks.

LQA provides flexibility to incorporate fund-dealing frequency. This allows an early warning system to alert which scenarios have adverse outcomes in meeting fund redemptions. Firms can also measure the cost of liquidating each position within customisable time-periods to determine the total liquidation cost of each scenario.

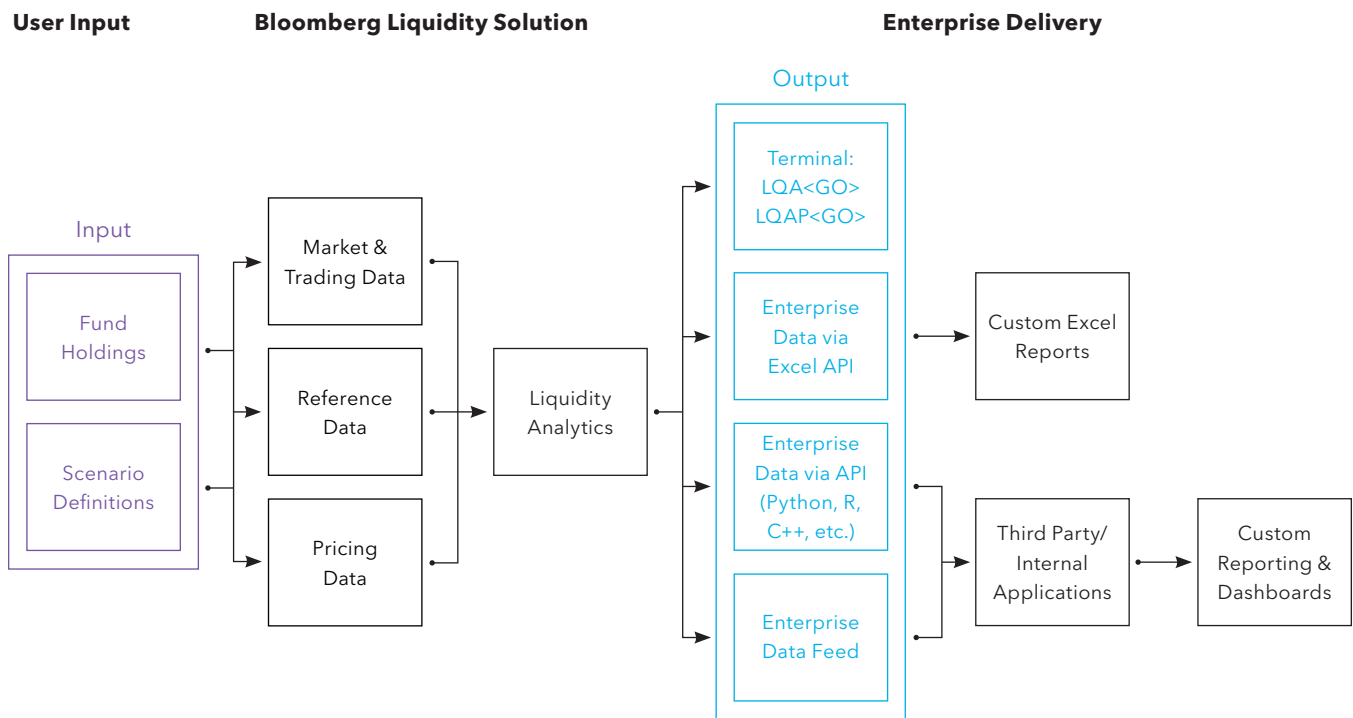| Redemption size (MV)	15,631,640	31,263,280	46,894,920	62,526,560	125,053,120	187,579,680
Redemption size (% AUM)	0.25	0.5	0.75	1	2	3
Normal	✓ 0.3	✓ 0.4	✓ 0.4	✓ 0.5	✗ 1.0	✗ 1.6
Mild	✓ 0.3	✓ 0.4	✓ 0.5	✓ 0.6	✗ 1.2	✗ 1.9
Moderate	✓ 0.4	✓ 0.5	✓ 0.6	! 0.8	✗ 1.7	✗ 2.7
Severe	✓ 0.5	✓ 0.7	✗ 1.0	✗ 1.3	✗ 2.9	✗ 4.7
Extreme	! 0.9	✗ 1.6	✗ 2.5	✗ 3.6	✗ 8.1	✗ 12.5

The values showed on this table reflect expected liquidation horizon (days).

Figure 4 – Basic dashboard combining asset and liability shocks overlaid with limit monitoring framework.

Workflow

LQA offers seamless integration into your current workflow whether based in a third party application, internal systems, Excel, and/or the Bloomberg Terminal. LQA liquidity analytics are available through:

- BLP API for programmatic connectivity via Python, R, C++, Java, etc.
- Excel API
- Enterprise Data-Feed
- Bloomberg Terminal:
    - LQA<GO> for single security and sector comparison
    - LQAP<GO> for portfolio liquidity profiling

User Input **Bloomberg Liquidity Solution** **Enterprise Delivery**

Output

Input

| Fund Holdings |
| Scenario Definitions |

Market & Trading Data

Reference Data

Pricing Data

Liquidity Analytics

Terminal: LQA<GO> LQAP<GO>

Enterprise Data via Excel API

Enterprise Data via API (Python, R, C++, etc.)

Enterprise Data Feed

Custom Excel Reports

Third Party/ Internal Applications

Custom Reporting & Dashboards

Comprehensive documentation is available including implementation guidance, stress-testing calibration examples, model methodology papers, and detailed model validation documents.

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